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The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, creed, color, religion, national origin, age, sex, pregnancy, disability, genetic information, status as a U.S. veteran, service in the U.S. military, sexual orientation, gender identity, associational preferences, or any other classification that deprives the person of consideration as an individual. The university also affirms its commitment to providing equal opportunities and equal access to university facilities. For additional information on nondiscrimination policies, contact the Director, Office of Equal Opportunity and Diversity, the University of Iowa, 202 Jessup Hall, Iowa City, IA 52242-1316, 319-335-0705 (voice), 319-335-0697 (TDD), diversity@uiowa.edu.

ABBREVIATIONS

SHL  Stanley Hydraulics Laboratory
CB  Chemistry Building
CPHB  College of Public Health Building
HA1  Hydraulics Annex 1
HA2  Hydraulics Annex 2
HEA  Hydraulics East Annex
HWBA  Hydraulic Wave Basin Annex
HWTA  Hydraulic Wind Tunnel Annex
JH  Jessup Hall
JSL  James Street Laboratory
OIGS  Oakdale Iowa Geological Survey
SC  Seamans Center
SH  Schaeffer Hall
TH  Trowbridge Hall

Front cover photograph: The C. Maxwell Stanley Hydraulics Laboratory is the hub of activity for IIHR.

Photo this page: An eagle soars above the Iowa River near the Stanley Hydraulics Lab.
We crafted this statement very careful, reflecting on IIHR's distinguished history, three-pronged approach to research, and our fluids-related innovations. All are critical to IIHR's success!

Our flagship facility is the historic C. Maxwell Stanley Hydraulics Laboratory (SHL) on the banks of the Iowa River. This iconic structure has spanned the 102-year history of the institute, and has for many of us come to represent the magnificent foundation upon which the IIHR of today is built. If you are not housed in SHL, I hope you have an opportunity to spend some time here.

A quick note about our name, because so many people ask: IIHR was the acronym for the Iowa Institute of Hydraulic Research. In 2002, our full name was officially changed to IIHR—Hydroscience and Engineering to better reflect the broad scope and modern multidisciplinary nature of the institute’s focus. The acronym “IIHR” is retained to reflect our rich history and our past century’s accomplishments.

Again, welcome to IIHR and to an exciting new chapter in your academic or professional life. I look forward to getting to know you. Please do not hesitate to contact me if I can help in any way.

Larry Weber
Director, IIHR—Hydroscience and Engineering
Professor, Civil and Environmental Engineering
Edwin B. Green Chair in Hydraulics
larry-weber@uiowa.edu

WELCOME TO IIHR—Hydroscience and Engineering (IIHR)! We’re very pleased you’ve chosen to continue your education or professional career at our world-renowned research institute! I hope you find this a rewarding place to study and work.

IIHR is a unit of the University of Iowa's College of Engineering. Faculty members, students, and other researchers work on just about everything related to fluids—from precipitation and flooding to biofluids, wind turbines, ship hydrodynamics, and beyond. You’ll benefit from IIHR’s comprehensive multidisciplinary approach to excellence in the study of basic fluid mechanics.

IIHR’s mission is to advance science and technology, providing innovative solutions for fluids-related problems while building upon its long tradition of excellence in laboratory, field, and simulation-based research and education.
The IIHR staff includes skilled individuals from various disciplines:

- Research engineers and scientists from, among others, the UI departments of:
  - Civil and Environmental Engineering
  - Mechanical Engineering
  - Biomedical Engineering
  - Earth and Environmental Sciences
  - Geographical and Sustainability Sciences
- Staff with full-time IIHR appointments
- Postdoctoral research associates
- Visiting faculty and researchers
- Support staff who provide:
  - Administrative and financial support
  - Assistance with travel arrangements
  - Grant preparation and submission support
  - Research computing support
  - Machining, carpentry, electrical, and model construction support

The IIHR director leads the institute and is ultimately responsible for all its endeavors, including staff activities, laboratory facilities, research procedures, reports, and finances. The director also pursues his own research and teaching. The director reports to the dean of the College of Engineering and to the UI vice-president for research, and ultimately to the university president. Research engineers directly supervise the various projects and graduate student-conducted investigations at IIHR.
LARRY J. WEBER
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- Water quality, watershed processes, physical modeling, river hydraulics, hydropower, computational hydraulics, ice mechanics, and fish passage facilities
- PhD, University of Iowa, 1993
- Edwin B. Green Chair in Hydraulics; Director, IIHR; and Director, Center for Hydrologic Development and Professor, CEE

KELLY BAKER
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- Occupational and environmental health
- Associate Professor, OEH

ALLEN BRADLEY JR.
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- Hydrology, hydroclimatology, and watershed modeling
- PhD, University of Wisconsin-Madison, 1992
- Professor and DEO, CEE

JAMES BUCHHOLZ
2440 SC  335-5935
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- Unsteady aerodynamics of biologically-inspired underwater and aerial vehicles, urban microclimate and transport phenomena, and cardiovascular fluid mechanics
- PhD, Princeton University, 2006
- Associate Professor, ME

KUNG-SIK CHAN
263 SH  335-2849
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- Time series analysis, chaos, semiparametric statistics, stochastic differential equations, stochastic processes, and ecological modeling
- PhD, Princeton University, 1986
- Professor, SAS

VENANZIO CICHELLA
2132 SC  467-0333
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- Cooperative control of maritime autonomous vehicles, collision avoidance, optimal control, machine learning, and human-centered autonomous vehicle design
- PhD, University of Illinois at Urbana-Champaign, 2018
- Assistant Professor, ME

GEORGE CONSTANTINESCU
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- Computational fluid dynamics, river mechanics, turbulence, and hydraulics
- PhD, University of Iowa, 1997
- Professor, CEE

DAVID CWIERTNY
4655 SC  335-1401
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- Pollutant fate and transport, and water and watershed treatment
- PhD, Johns Hopkins University, 2006
- William D. Ashton Professorship in Civil Engineering; Professor, CEE
IIHR RESEARCH ENGINEERS & RESEARCH SCIENTISTS

IBRAHIM DEMIR
314 SHL 335-5780
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- Environmental information systems, data informatics, scientific visualization, data management, and web-based systems
- PhD, University of Georgia, 2010
- Associate Professor, CEE

JEFF DORALE
35A TH 335-0822
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- Paleoclimatology, paleoecology, global change, use of isotopic and elemental tracers and chronometers to reconstruct past environmental conditions
- PhD, University of Minnesota, 2001
- Associate Professor, EES

TORI FORBES
W374 CB 384-1320
tori-forbes@uiowa.edu
- Synthesis and characterization of novel actinide-based nanotubes and molecular clusters, X-ray diffraction and scattering techniques, transport and mobility of nuclear materials in aqueous environmental systems, and radiochemistry
- PhD, University of Notre Dame, 2008
- Professor, CHEM

CASEY HARWOOD
223F SHL 335-5749
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- Experimental fluid dynamics, fluid-structure interactions, lifting surfaces and propellers
- PhD, University of Michigan, 2014
- Assistant Professor, ME

KERI HORNBUCKLE
4114 SC 384-0789
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- PCBs, cycling of organic contaminants in the Great Lakes, air pollution, and environmental engineering
- PhD, University of Minnesota, 1996
- Donald E. Bently Professor in Engineering; Director, Iowa Superfund Research Program; Professor, CEE

CHRIS JONES
332 TH 335-0589
christopher-s-jones@uiowa.edu
- Water quality and agriculture, water monitoring, nutrient and sediment transport
- PhD, Montana State University-Bozeman, 1989
- Research Engineer, IIHR; and Adjunct Associate Professor, CEE

CRAIG JUST
310 SHL 335-5051
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- Measuring water quality at rapid intervals, mussels as living biosensors, fate of pharmaceuticals in non-conventional wastewater treatment systems, and human exposure to PCBs from industrial dredging
- PhD, University of Iowa, 2001
- Associate Professor, CEE
WITOLD F. KRAJEWSKI
523D SHL  335-5231
witold-krajewski@uiowa.edu
- Hydrometeorology, remote sensing, and water resources systems
- PhD, Technical University of Warsaw (Poland), 1980
- Rose and Joseph Summers Chair in Water Resources Engineering; Professor, CEE; and Director, Iowa Flood Center

GREGORY LEFEVRE
4106 SC  335-5655
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- Fundamental mechanisms related to the microbial and vegetative biotransformation of emerging contaminants in aquatic environments
- PhD, University of Minnesota, 2012
- Associate Professor, CEE

ANTS KRUGER
323D SHL  335-6287
anton-kruger@uiowa.edu
- Hydrometeorology instrumentation, particle image velocimetry and image processing, and visualization/management of large geographic datasets
- PhD, University of Iowa, 1991
- Professor, ECE; and Donald E. Bently Faculty Fellow of Engineering

CATERINA LAMUTA
2404 SC  467-0332
caterina-lamuta@uiowa.edu
- Smart materials, multifunctional nanocomposites, artificial muscles, bio-inspired systems, artificial camouflage, and depth-sensing indentation
- PhD, University of Calabria (Italy), 2017
- Assistant Professor, ME

HANS-JOACHIM LEHMLER
S353 CPHB  335-4211
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- Disposition and metabolism of chiral environmental contaminants, toxicity of perfluorinated surfactants, and interaction of fluorinated materials with biological lipid assemblies
- PhD, University of Bonn (Germany), 1995
- Professor, OEH

CHING-LONG LIN
2406 SC  335-5673
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- Simulation of two-phase flow, free-surface turbulence, lattice-Boltzmann simulation of liquid-gas, liquid-liquid, and fluid-solid interactions for microfluidics, four-dimensional assimilation of atmospheric LiDAR data, and pulmonary flow
- PhD, Stanford University, 1994
- Edward M. Mielnik and Samuel R. Harding Professor; Professor and DEO, ME

DREW LATTA
4105 SC  335-5646
drew-latta@uiowa.edu
- Aquatic redox reactions, fate and transport of groundwater contaminants, and geochemistry of major and trace metals
- PhD, University of Iowa, 2010
- Assistant Research Scientist, IIHR
RACHEL MAREK
4105 SC  335-5585
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- Siloxanes, pesticides, PCBs, and PCB breakdown products in the environment and in humans, and passive air sampling of PCBs in schools
- PhD, University of Iowa, 2013
- Assistant Research Scientist/Engineer, IIHR

COREY MARKFORT
323E SHL  335-6168
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- Environmental fluid mechanics, turbulence, atmospheric boundary layer, renewable energy and wind engineering, biosphere-atmosphere exchange, hydrology, water resources engineering, physical limnology, and earth systems dynamics and change
- PhD, University of Minnesota, 2013
- Associate Professor, CEE

EZQUEL MARTIN
423B SHL  335-6022
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- CFD and EFD
- PhD, University of Illinois at Urbana-Champaign, 2009
- Associate Research Engineer, IIHR

ANDRES MARTINEZ ARANEDA
4105 SC  335-6454
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- Environmental contaminant fate and transport modeling, with emphasis in analysis and simulation of the behavior of organic pollutants in urban, remote, and industrial areas
- PhD, University of Iowa, 2010
- Adjunct Assistant Professor, CEE; and Assistant Research Engineer, IIHR

TIM MATTES
4112 SC  335-5065
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- Environmental biotechnology, oxidative biocatalysis, evolution of microbial biodegradation pathways, and application of genomics and proteomics techniques in the study of environmentally relevant microbial communities
- PhD, Cornell University, 2004
- Professor, CEE

JESSICA MEYER
209 TH  335-1831
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- Natural flow system conditions in heterogeneous geologic settings, particularly the relationship between the hydraulic and geologic structure of the subsurface.
- PhD, University of Guelph, 2013
- Assistant Professor, EES

MARIAN MUSTE
302 SHL  384-0624
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- Experimental methods in hydraulics and fluid mechanics, sediment transport, environmental fluid mechanics, and engineering education
- PhD, University of Iowa, 1995
- Adjunct Professor, CEE; Research Engineer, IIHR
JAMES NIEMEIERS
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- Water quality, nutrient fate and transport, biogeophysics, and near-surface environmental geophysics
- PhD, University of Iowa, 2010
- Assistant Research Scientist, IIHR

ELISE PIZZI
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- Water sustainability
- PhD, University of Colorado-Boulder, 2015
- Assistant Professor, PS

YUGO SANADA
223-4 SHL 319-467-4572
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- Ship hydrodynamics
- PhD, Osaka University (Japan), 2007
- Associate Research Scientist, IIHR

FELIPE QUINTERO DUQUE
523B SHL 384-1727
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- Flood forecasting, radar meteorology, and propagation of uncertainty in hydrologic modeling
- PhD, Universitat Politecnica de Catalunya (Spain), 2011
- Assistant Research Scientist, IIHR

MICHELLE SCHERER
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- Fundamental and practical aspects of chemical contamination of aquatic environments, heterogeneous processes occurring in both natural and engineered systems, including surface redox reactions and adsorption/complexation phenomena, and understanding and modeling the kinetics of transformation reactions at the mineral-water interface
- PhD, OGI School of Science and Engineering, 1998
- Donald E. Bently Professor in Engineering; Professor, CEE

KEITH SCHILLING
340A TH 335-1422
keith-schilling@uiowa.edu

- Hydrogeology, hydrology, and nonpoint source pollution
- PhD, University of Iowa, 2009
- Adjunct Assistant Professor, EES; State Geologist of Iowa, Iowa Geological Survey; Research Engineer, IIHR

JERRY L. SCHNOOR
4119 SC 335-5649
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- Water quality, phytoremediation, and climate change
- PhD, University of Texas, 1975
- Allen S. Henry Chair in Engineering; and Professor, CEE
HUNTER SCHROER
323-8 SHL
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- Waste-to-energy, anaerobic digestion, pollutant remediation
- PhD, Civil & Environmental Engineering, 2018, University of Iowa
- Assistant Research Scientist

SILVIA SECCHI
310 JH 335-1927
silvia-secchi@uiowa.edu
- Natural resources economics focusing on a wide range of interdisciplinary issues related to agriculture, energy, and the environment
- PhD, Iowa State University, 2000
- Professor, GSS

BONGCHUL SEO
523E SHL 384-2041
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- Radar hydrology and rainfall uncertainties
- PhD, University of Iowa, 2010
- Associate Research Scientist, IIHR

PRADEEP SESHADRI
5612 SC 383-5793
pradeep-seshadri@uiowa.edu
- Shock Physics, Energetic Materials, Computational Fluid Dynamics
- PhD, Indian Institute of Technology Kanpur, India, 2020
- Assistant Research Scientist, IIHR

CHARLES STANIER
4122 SC 335-1399
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- Laboratory investigation and field sampling of air pollution, particularly aerosol particles, computational simulations of atmospheric, aerosol chemistry, and health effects of airborne contaminants
- PhD, Carnegie Mellon University, 2003
- Professor, CBE

FRED STERN
223C SHL 335-5215
frederick-stern@uiowa.edu
- 6DOF viscous ship hydrodynamics, high performance multi-criteria CFD-based optimization for ship design, towing tank maneuvering test flow-map measurement system, and integration of simulation technology into undergraduate engineering courses and laboratories
- PhD, University of Michigan, 1980
- George D. Ashton Professor of Hydroscience and Engineering; and Professor, ME

MATTHEW STREETER
340C TH 335-1593
matthew-streeter@uiowa.edu
- Soil erosion, soil carbon and nitrogen relationships, and soil nutrient processing
- PhD, Iowa State University, 2021
- Soil Scientist, Iowa Geological Survey; Assistant Research Scientist, IIHR
Development of social vulnerability and resilience indicators, assessment of uncertainty and sensitivity in geospatial models, and GIS modeling in support of flood hazard mitigation
- PhD, University of South Carolina, 2011
- Associate Professor, GSS

H.S. Uday Kumar
2408 SC  384-0832
hs-kumar@uiowa.edu

- Numerical methods for materials processing, biofluid mechanics, elastoplastic wave propagation in impacting media, fluid-structure interactions, and advanced numerical schemes for moving boundary problems
- PhD, University of Florida, 1994
- Professor, ME; Associate Dean for Graduate Programs and Research, COE

Nicolás Velásquez Giron
523 F SHL  512-4194
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- Hydrological modeling, flood forecasting, watershed processes, erosion processes, radar hydrolog
- PhD, National University of Colombia, 2018
- Assistant Research Scientist, IIHR

Sarah Vigmostad
5615 SC  384-2008
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- Computational fluid mechanics, cardiovascular biomechanics, multiscale modeling, fluid-structure interactions
- PhD, University of Iowa, 2007
- Associate Professor, BE; Associate Dean for Diversity, Equity, and Inclusion, CoE

Gabriele Villarini
323B SHL  384-0596
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- Hydrometeorology, climatology, extreme events, climate change, hurricanes, seasonal forecasting, remote sensing of rainfall, and applied statistics
- PhD, University of Iowa, 2008
- Robert and Virginia Wheeler Faculty Fellowship in Engineering; Professor, CEE

Chao Wang
4651 SC  467-1676
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- Smart and connected systems, transfer/multitask learning for information fusion, high dimensional data modeling and analysis, manufacturing process control and infrastructure management.
- PhD, University of Wisconsin-Madison, 2019
- Assistant Professor, ISE
IIHR RESEARCH ENGINEERS & RESEARCH SCIENTISTS

ZHAOYUAN WANG
223E SHL  335-6293
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- CFD, free surface and interfacial flows, VOF and level set methods, free surface tracking, and surface tension modeling
- PhD, University of Texas, 2006
- Associate Research Scientist, IIHR

FRANK H. WEIRICH
217 TH  335-0156
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- Geomorphology and related hydrologic processes, sediment transport and reservoir sedimentation, and watershed response to environmental changes
- PhD, University of Toronto (Canada), 1982
- Associate Professor, EES

YULIANG XIE
5637 SC  335-7621
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- Lab-on-a-chip for airway physiology and disease, microfluidic manipulation of particles and fluids, and mucus in airway host defense
- PhD, Pennsylvania State University, 2016
- Assistant Professor, BE

NATE YOUNG
306 SHL  384-1732
nathan-young@uiowa.edu
- Ecohydraulics, field measurements, and freshwater mussel habitats
- PhD, University of Iowa, 2006
- Adjunct Associate Professor, CEE; and Research Engineer, IIHR

ABBREVIATIONS
- BE: Biomedical Engineering
- CBE: Chemical and Biochemical Engineering
- CEE: Civil and Environmental Engineering
- CHEM: Chemistry
- CSE: Computer Science and Engineering
- ECE: Electrical and Computer Engineering
- EES: Earth and Environmental Sciences
- GSS: Geographical and Sustainable Sciences
- ISE: Industrial and Systems Engineering
- ME: Mechanical Engineering
- OEH: Occupational and Environmental Health
- PS: Political Science
- SAS: Statistics and Actuarial Science
Dear New IIHR Students and Staff,

As state geologist and director of the Iowa Geological Survey (IGS), I’m pleased to welcome you to IIHR at the University of Iowa, which has been home to IGS since 2014.

Together, IIHR and IGS are a great team for studying all things related to Iowa geology and water resources. To learn more about the IGS, I invite you to check out our website (https://iowageologicalsurvey.org), where you’ll find a lot of interesting information to browse through. The site is organized around four main pillars: Research, Services, Popular Interest, and Data and Resources. Because IGS has been around since 1892, we have a lot of great general information and publications related to Iowa to share. This information can be found in our Popular Interest section, which includes such diverse topics as fossils, landforms, minerals, Iowa parks, and (of course) our state rock, the geode. We think you’ll enjoy browsing through these topics and more as we continue to add new materials as time allows.

Research has always been an important component of our work at IGS, and the list of publications, reports, and maps produced by IGS staff over the last century is impressive. IGS is actively conducting applied and foundational research on many topics, and links to many of these project areas can found under the Research tab. We encourage everyone to visit our publications page to get a glimpse of the scope and breadth of research conducted by IGS on Iowa-centric topics. Likewise, clicking on the tab for Data and Publications will introduce you to a series of interactive maps, publications, and databases that can help you dig deeper and learn more about Iowa’s geology.

As IGS moves into its next century of service to Iowans, we believe it is also important to highlight the services that IGS can perform for private clients, individuals, and government agencies. The IGS possesses advanced expertise, instrumentation, and equipment that can provide critical information to aid client planning and decision-making efforts. Popular services include groundwater modeling, geophysical analysis, drilling and sediment analysis, and geologic mapping. We welcome the opportunity to work with students, faculty, and clients to meet their individual needs and encourage anyone interested to reach out to the IGS for more information.

As we move into the future, it is important to acknowledge the long and storied past of IGS and the contributions made by geologists and staff over the last century. We truly stand on the shoulders of giants as we carry on their work to know more about Iowa’s natural resources. We look forward to hearing from you!

Keith Schilling
State Geologist of Iowa
Director, Iowa Geological Survey
340A TH, 335-1422
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KEITH SCHILLING
State Geologist of Iowa
340A TH 335-1422
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- Leads and manages IGS research and financial operations, budgets, reports, and activities.
- State Geologist of Iowa and Director, IGS; Research Engineer, IIHR; Adjunct Assistant Professor, EES

ALYSSA M. BANCROFT
Geologist
301 TH 467-4318
alyssa-bancroft@uiowa.edu

- Uses integrated chronostratigraphic proxies (biostratigraphy, chemostratigraphy) for bedrock mapping.

GREG BRENNAN
Hydrogeologist
105 OIGS 335-4465
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- Conducts groundwater modeling of both statewide and local-scale aquifers.

RYAN CLARK
Geologist
1 HWTA 335-4024
ryan-j-clark@uiowa.edu

- Conducts geologic mapping, groundwater resources management, assisting water well drillers and quarry operators, creating lithologic logs of rock core and well chip samples, and education and outreach activities.

PHILLIP KERR
Geologist
340C TH 335-1081
phillip-kerr@uiowa.edu

- Produces maps of the deposits left by glaciers during the last Ice Age, and assists other geologists and hydrogeologists.

RICK LANGEL
Geologist
305 TH 335-4102
richard-langel@uiowa.edu

- Manages the IGS databases, which serve geologic data to the public, and manage the IGS Rock Library, develops GIS coverages for use in groundwater related projects.

SOPHIE PIERCE
Research Assistant/Hydrogeologist
340D TH 467-1863
sophie-pierce@uiowa.edu

- Collects and analyzes soil and water samples and data and assists with many other field and lab activities.
MATTHEW STREETER
Soil Scientist
340 C TH 335-1593
matthew-streeter@uiowa.edu
- Monitors soil and water relationships related to soil sustainability and water quality, including soil erosion, soil carbon and nitrogen relationships, as well as nutrient processing capacities of soils.

STEPHANIE TASSIER-SURINE
Geologist, STATeMAP Coordinator
340B TH 335-3679
stephanie-tassier-surine@uiowa.edu
- Researches and conducts field investigations on the quaternary deposits and stratigraphy of Iowa, collects, describes, and analyzes surface and subsurface geologic samples for surficial mapping.

ROSEMARY TIWARI
Research Support Specialist
305 TH 335-1575
rosemary-tiwari@uiowa.edu
- Office administrator/accountant for the Iowa Geological Survey.

JASON VOGELGESANG
Hydrogeologist
104 OIGS 335-4231
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- Uses geophysical field methods to image and characterize the subsurface to help address questions related to groundwater supply and quality, and other geologic concerns.

JOE BOLKCOM
Outreach and Community Education Director, Iowa Flood Center
426 IATL 353-2681
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- Supports Iowa Flood Center outreach and education efforts.

KATE GIANNINI
Program & Communications Specialist, IWA
133-4 SHL 335-5233
kate-giannini@uiowa.edu
- Outreach, communication, and research activities for the Iowa Watershed Approach.

DAVID PURDY
Program Administrator, ISRP
4151 SC 335-4419
david-purdy@uiowa.edu
- Support, administrative, and fiscal services for the Iowa Superfund Research Program.

BREANNA SHEA
Program & Communications Specialist, IFC
133-7 SHL 384-1729
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- Communication and outreach for Iowa Flood Center and the Iowa Watershed Approach.
OTHER ENGINEERS & SCIENTISTS

JORDAN BARNETT
Environmental Field Assistant
105 OIGS
jordan-barnett@uiowa.edu
- Construction, installation, and maintenance of field site structures, precision sensors, and other equipment. Collection and analysis of water and soil samples.

BART BROWN
Senior Application Developer
423-4 SHL 335-6432
bartley-brown@uiowa.edu
- Web development and programming for the Iowa Flood Center and the Iowa Flood Information System (IFIS)

DANIEL CEYNAR
Project Engineer
8 HWTA 335-5180
daniel-ceynar@uiowa.edu
- Remote sensing, instrumentation design and deployment, and project management.

DANIEL GILLES
Water Resources Engineer
323A SHL 333-0216
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- Development of flood models to simulate how flooding occurs in communities.

RADEK GOSKA
Project Engineer
523C SHL 335-5255
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- Database development, real-time data acquisition for IFIS, and development of GUI for hydro-NEXRAD and XPOL radars.

MARCELA ROJAS OLIVEROS
Hydrologic Engineer
223-2 SHL
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- Development of rating curves for stream-stage sensors at many locations on rivers in Iowa as part of a project with the U.S. Army Corps of Engineers.

RAGHAVENDRAN SIVASUBRAMANIAN
Research Specialist
4227 SC
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- Aerobic granular sludge, activated sludge, rotating algal biofilm reactors, extracellular polymeric substances, sequencing batch reactors

THOMAS STOEFFLER
Research Associate
105 OIGS
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- Construction, installation, and maintenance of field site structures, precision sensors, and other equipment. Collection and analysis of water and soil samples.
Dear New IIHR Students and Staff,

Welcome to IIHR! We’d like to introduce you to the administrative staff at IIHR. Professional administrative staff members conduct essential activities that support the research, education, and service that are at the core of IIHR’s mission.

Items handled by the administrative staff include:

- University and IIHR policy questions
- Grant and budget preparation
- IIHR email updates
- Plan and set up meetings, including the SHL conference and seminar rooms
- Point of contact to schedule meetings with the IIHR Director and Associate Director
- Financial reporting
- Student employment paperwork
- Tuition payments
- Assistance with processing travel expenses, purchasing items, reimbursements
- Assistance with payroll questions
- Distributing office and building keys
- Billing and payment of personal expenses associated with use of IIHR-owned items
- General office needs (office supplies, seating assignments, etc.)

Please feel free to contact any administrative staff with questions or needs you may have. We wish you the best in all your educational endeavors!

Sincerely,

Teresa Gaffey
Director of Finance and Business Operations
107A SHL
335-6166
teresa-gaffey@uiowa.edu
**ADMINISTRATIVE STAFF**

**COLLIN DAVIS**  
Business Development and Proposal Specialist  
133-5 SHL  467-0243  
collin-davis@uiowa.edu  
- Researches and identifies funding opportunities, facilitates grant contract submissions, and provides marketing support.

**SUZANNE DOERSHUK**  
Pre-Award Grants and Contracts Specialist  
133-1 SHL  384-0701  
suzanne-doershuk@uiowa.edu  
- Provides proposal submission and grant application assistance, including budgeting, editorial assistance, document review, award documentation, and interface with DSP and sponsor people and systems.

**MELISSA ECKRICH**  
Senior Accountant  
423C SHL  335-5845  
melissa-eckrich@uiowa.edu  
- Provides accounting services, including processing employment paperwork, payroll, and grant and contract management.

**TERESA GAFFEY**  
Director of Finance and Business Operations  
107A SHL  335-6166  
teresa-gaffey@uiowa.edu  
- Manages and coordinates all IIHR financial operations, budgets, grants, reports, and activities.

**SANDY GERARD**  
Program Coordinator  
1 HWTA  335-5217  
sandra-gerard@uiowa.edu  
- Supports major programmatic initiatives and post-award accounting.

**HEATHER HUNTER**  
Supply Chain Associate  
University Shared Services  
133-3 SHL  335-4827  
heather-a-hunter@uiowa.edu  
- Provides administrative support processing internal forms to procure goods and services, reconciles departmental credit cards, and processes travel expense vouchers and reimbursement requests.
ADMINISTRATIVE STAFF

LAURA MYERS
Administrative Services Specialist
107-1 SHL  335-5253
laura-l-myers@uiowa.edu

- Provides administrative support, including website support; meeting planning; immigration support; and scheduling for the IIHR director.

JENNIE PORTWOOD
Business Analysis Coordinator
107 SHL  353-3742
jennifer-portwood@uiowa.edu

- Provides accounting and database services, including printing access; key issuance; receipt of payments; database maintenance; post-award support; and financial and award reporting.

ROSEMARY TIWARI
Research Support Specialist
305 TH  384-0611
rosemary-tiwari@uiowa.edu

- Provides administrative and research support services for the IGS group, including management of building issues, social media outreach, awards compliance, and budgeting.
Dear New IIHR Students,

Welcome to IIHR! I believe research computing is a subset of information technology, specializing in the computation and support resources needed to execute a successful research program. Research computing focuses on acquiring, processing, storing, presenting, and archiving the materials, data, codes, and publications involved in vibrant research activities. My group, Research Computing Support (RCS), strives to provide an efficient, effective computational platform for your research and leaves the day-to-day IT-related functions, such as email, to campus groups specializing in those services. RCS is, however, your point of contact for any IT-related question, and we will gladly find a solution provider if we don’t offer that support function ourselves.

Please review the information related to IIHR’s support of research computing and feel free to contact me with any questions you have. I look forward to working with you!

Sincerely,
Brian Miller
Research Computing Manager
423A SHL
335-5321
brian-s-miller@uiowa.edu
EQUIPMENT AND RESOURCES
IIHR maintains a diverse set of computing resources and facilities. Over the past two decades, IIHR has been at the forefront of HPC parallel applications, moving from several large Silicon Graphics Power Challenge Array shared memory systems, a Sun Microsystems distributed memory system, to the current large node distributed memory systems. Our codes are implemented on Nvidia Kepler/Xeon Phi highly parallel systems and within various cloud computing environments.

The Argon cluster is the primary central HPC resource after the recent retirement of our initial HPC systems, Helium and Neon. The system comprises more than 600 compute nodes with over 15,000 processor cores, 112 TB of memory, and over 110 GPU accelerators. Argon has an internal high-performance message-passing network (Infiniband and Omnipath), and the system is networked by trunked high speed 10Gb Ethernet links to the Internet2 and BOREAS networks.

Argon is managed so that investor queues are quickly made available to members of the investors’ group. When idle, these resources are released for use by others. This system has worked out very nicely and will continue to be the model for UI HPC resource sharing.

ARGON CLUSTER
The latest HPC system, Argon, came online in January 2017. Like its predecessors, Helium and Neon, Argon is jointly operated by IIHR, ITS, and a collaborative group of researchers from around the university. Argon is a shared system with, currently, more than 600 compute nodes, ~15,000 processor cores, 112 TB of memory, and over 110 GPU accelerators — 21 machines with Nvidia P100 accelerators, 2 machines with Nvidia K80 accelerators, 11 machines with Nvidia K20 accelerators, 2 machines with Nvidia P40 accelerators, 13 machines with 1080Ti accelerators, and 18 machines with Titan V accelerators.

RESOURCES, EQUIPMENT, SERVICES, AND SOFTWARE
The following is a description of the other major computing resources, equipment, services, and software available to all IIHR affiliates and students.

- IIHR operates several large-scale data harvesting and processing systems related to flood sensing and modeling. The Iowa Flood Information System (IFIS) collects LDM and other weather data and builds a sequence of products for later modeling. Raw data packets are ingested on one system and passed to another system for processing and storage in a database. A third system provides web-based access to these data products. Similarly, a network of bridge-mounted flow sensors supply data to servers that are handled in a manner similar to the IFIS network. This architecture has proven scalable and reliable.

- HPC at IIHR is augmented by 18 Silicon Mechanics storage units providing 750 TB of storage in a RAID 60 configuration. This storage space is replicated to an offsite location with hourly snapshots taken for user-invoked file recovery.

- Very large-scale computations are done at national and international computation centers accessed through longstanding IIHR-center relationships. In addition to the NSF and DOD/DOE centers (e.g., NCSA, Argonne National Labs), IIHR has developed a continuing collaboration with the National Center for High Performance Computing (NCHC) in Taiwan.

- Fifty-seven Linux workstations and more than 300 individual PCs running MS Windows 10 support the local centralized facilities. Thirty PC-based servers handle web, ftp, security, and specialized database services. Most of the servers...
are virtualized using VMWare hosts at IIHR and the College of Engineering (CSS). In addition, a number of user-located storage devices, publication-quality color printers, scanners, cameras, and other peripherals are in use.

- This hardware is complemented by a carefully selected set of public domain, commercial, and proprietary software packages, including Tecplot, Gridgen, Fluent, FlowLab, Matlab, Origin, ERDAS, ERMapper, ERSI, Skyview, and the core GNU utilities. Additionally, software such as AutoCAD, MS Windows, MS Office, OS X, Mathematica, IDL, SigmaPlot, and SAS are used under university-wide site licenses.
RESEARCH COMPUTING SUPPORT

BRIAN MILLER
Research Computing Manager
423A SHL, 335-5321
brian-s-miller@uiowa.edu
- Designs, installs, and configures networked computing systems, including administration, security, and maintenance of hardware and software. Maintains operating system software and user account management in a blended Windows, Linux, and Mac OS environment.

ERIC PRILL
Systems Administrator
423E SHL, 335-6794
eric-prill@uiowa.edu
- Assists in the design, installation, and configuration of networked computing systems, including administration, security, and maintenance of hardware and software. Maintains operating system software and user account management in a blended Windows, Linux, and Mac OS environment.

LEXIE KING
Application Developer
423F SHL, 335-6272
lexie-king@uiowa.edu
- Develops web-based database applications to support IIHR research and internal operations, and provides maintenance and support for these applications, as well as managing web presentation of information.
Dear New IIHR Students and Staff,

I would like to sincerely welcome you to IIHR, and I hope your work here will be successful and rewarding. IIHR provides staff and resources to assist and support your research activities. Our goal in IIHR Engineering Services (IeS) is to provide high-quality resources that will play a key role in your success as students and researchers. Please take a few moments to read the following information regarding the use of our shops and facilities. These guidelines and policies are designed to ensure a safe, organized, and professional environment for all who work, study, or conduct research using the facilities and/or assistance of the IeS staff.

For more information, please visit our website: www.iihrengineering.com. Please don’t hesitate to contact me with any questions you may have. I look forward to meeting you and assisting with your research needs.

Sincerely,

Troy Lyons
Associate Director
PhD, University of Iowa, 2021
107B SHL 335-5319
troy-lyons@uiowa.edu
IIHR Engineering Services

Mechanical Shop Hours
7:30 AM – 5 PM, Monday – Thursday
7:30 AM – 4:30 PM, Friday

IIHR buildings are open during work hours, but must remain locked at all other times. Doors must not be unlocked or propped open outside stated working hours.

Safety
IIHR takes the safety of students, staff, and faculty very seriously. Due to the ongoing construction for research projects in many of our laboratories, safety precautions are paramount. Mandatory training to operate lasers, power equipment, forklifts, scissors lift, trailers, boats, etc., is required for all students, faculty, and staff who will be using the equipment. Due to safety and liability concerns, much of the equipment cannot be used by students without proper training and direct supervision of shop staff. Contact Brandon Barquist regarding permission to use equipment and required safety training.

Vehicles
IIHR maintains a variety of vehicles for the use of faculty, staff, and occasionally students. Vehicle requests should generally be directed to Laura Myers (IIHR main office) or Brandon Barquist (Mechanical Shop), depending on the vehicle requested. IIHR vehicles may be used for authorized IIHR business only.

Laboratory Management
IIHR staff manage several campus labs. They oversee lab safety, maintain and troubleshoot advanced analytical instruments, train users to operate equipment, and formulate protocols for research instrumentation. Students needing support involving analytical instrumentation for their laboratory research activities should contact Deb Williard.

Equipment and Resources
For the convenience of Mechanical Shop personnel, equipment and tools are kept in unlocked, unsecured areas of several IIHR buildings. Although it may appear as if these tools are available for anyone to use, this is not the case. The following is intended to clarify the uses, purposes, and procedures related to IIHR Mechanical Shops resources.

Hand and Power Tools
Only Mechanical Shop personnel are allowed to use power equipment. Many Mechanical Shop machines can amputate a limb if used improperly. The hand tools, while much safer to use, are generally not “loaned out.” The shop has hand tools that are dedicated to student and/or researcher use wherever needed in our facilities. If these tools do not seem to be available, or if special tools are required, talk to Mechanical Shop Supervisor Brandon Barquist.
PUMPS
Start-up, shut-down, unattended operation, maintenance, high voltage—many types of pumping equipment are available, each with its own peculiarities. While some pumps can be used unattended, others cannot. Some are simple to operate, and others are complex. All pump operations should be reviewed with Brandon Barquist prior to use.

ELECTRICAL POWER
Building electrical supply, overloading, interruptions, locations, ground fault interrupters—electricity and water do not mix. Please discuss power usage with Diem Nguyen if your needs exceed what is required to light your work area or operate your computer. Annually, the fire marshal cites IIHR for any improper use of electrical power near wet areas.

PROTOCOLS
Income from research grants and contracts funds IIHR Engineering Shops & Services, their personnel, and supplies/equipment. The shop receives no state funding. Therefore, an IIHR account number is required for almost any work done in the shop. Time and materials will be charged to this account number.

PROTOCOL FOR SHOP REQUESTS
- Task requests must be approved by the student’s advisor or the project PI.
- Task requests should be directed to Brandon Barquist.
- Shop staff require drawings and/or sketches, or at minimum written descriptions of the requested work.
- Shop staff and the work requester must come to an agreement on the maximum charge and completion time frame for the task or project.
- The requester should clearly communicate any specific or unusual requirements.

USE OF SHOP MATERIALS
The shop keeps a large inventory of materials, fasteners, widgets, gizmos, and otherwise interesting stuff on hand for a wide variety of needs. In many cases, these items can be donated or lent to research efforts. Other items must remain available for shop use. Contact Brandon Barquist about use of these items.

BOATS
IIHR has boats and instrumentation for use in field data collection programs. The boats range from kayaks for small streams and backwater areas to large multi-engine boats suitable for large navigable rives and lakes. Coordinate boat and instrumentation reservations through Brandon Barquist or Tony Loeser. IIHR has strict boat operator requirements and can provide a qualified boat operator with advance notice. Boat operator training, coordinated through Tony Loeser, can be provided on an as-needed basis for longer term projects.

DRONES
IIHR has drones for use in field data collection and imaging. The university requires drone operators to comply with FAA regulations. To be in compliance, a drone pilot must obtain a remote pilot certificate or be under the direct supervision of a certificate holder. Coordinate drone training and reservations through Tony Loeser, who is a certified drone pilot.

RECHARGE RATES
IIHR maintains a variety of equipment and instrumentation, including state-of-the-art survey equipment, flow meters, velocity meters, generators, boats, vehicles, trailers, field laptops, and more. Each is available for lease to projects on a first-come, first-served basis. The revenue generated by the use of this equipment helps keep existing equipment in good working order, update equipment as needed, and invest in additional equipment. See Tony Loeser or Diem Nguyen regarding rates, reservations, and use of the equipment.
IIHR ENGINEERING SERVICES

TROY LYONS, PE
Associate Director
107B SHL 335-5319
troy-lyons@uiowa.edu
- Directs engineering support services related to design and conduct of hydraulic model studies, laboratory research, and fieldwork. Serves as PI on numerous projects and contracts. Oversees IIHR facilities.
- PhD, University of Iowa, 2021

BRANDON BARQUIST
Engineering Specialist, Mechanical Shop Manager
5 HMA 384-3273
brandon-barquist@uiowa.edu
- Coordinates personnel and resources for the design and construction of specialized flumes and physical models for IIHR research. Supervises construction of laboratory equipment and maintenance of IIHR facilities.

TONY LOESER
Water Resources Engineer
3 HWTA 353-0739
tony-leser@uiowa.edu
- Provides engineering support for a wide variety of research projects. Specializes in physical hydraulic modeling and river surveys. Expert in GIS, LabVIEW, and other engineering data software programs. Also oversees IIHR’s survey equipment and boat instrumentation.

JAMES NIEMEIER
Engineer, Electronics Shop
2 HWTA 384-2918
james-niemeier@uiowa.edu
- Provides support for development and application of electronics and instrumentation. Also oversees IIHR’s equipment inventory and laser safety program.
- PhD, University of Iowa, 2010
ROBERT NACE
Assistant Shop Manager
1 HLMA  384-2017
robert-r-nace@uiowa.edu
Provides support for laboratory model construction, including carpentry, welding, machining, and metal-working.

BEN ABBOTT
Engineering Assistant
14 HWTA  335-6088
ben-abbott@uiowa.edu
Provides skilled machining and fabrication support for laboratory models and instrumentation.

AUSTIN BROCKMAN
Engineering Assistant
austin-brockman@uiowa.edu
Provides general support for laboratory model construction, including welding, carpentry, and metal-working.

JIM GOSS
Lead Welding Foreman
HMA Shop  335-5249
james-goss-1@uiowa.edu
Provides support for laboratory model construction, with expertise in welding, carpentry, metal-working, and painting.

JASON KNOX
CAD Drafter/Designer
HMA Loft  335-6087
jason-knox@uiowa.edu
Provides drafting support for laboratory model construction, instrumentation design, and support for CNC machines. Specializing in 3D drawings using Creo (ProE) and SolidWorks.

RICK SAEUGLING
Engineering Assistant
1 HLMA  335-5245
richard-saeugling@uiowa.edu
Provides general support for laboratory model construction, including welding, carpentry, and metal-working.

CHRISTOPHER KNUTSON
EES Laboratory Manager
4105 SC  384-2051
Provides oversight and support of IIHR’s environmental research laboratories, including maintenance of advanced analytical instruments, training, and safety.