WELCOME
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SHL Stanley Hydraulics Laboratory
SC Seamans Center
CPHB College of Public Health Building
ERF Engineering Research Facility
HWBA Hydraulic Wave Basin Annex
HWTA Hydraulic Wind Tunnel Annex
IATL Iowa Advanced Technologies Laboratory
JH Jessup Hall
SH Schaeffer Hall
WP Water Plant
TH Trowbridge Hall
OIGS Oakdale Iowa Geological Survey
JSL James Street Laboratory
HEA Hydraulics East Annex
HA1 Hydraulics Annex 1
HA2 Hydraulics Annex 2

Front cover photograph of SHL: David Herwaldt
Photo illustration this page: David Herwaldt
(based on two photographs by Aneta Goska)
Welcome to IIHR—Hydroscience & Engineering (IIHR), and to a new school year! We’re very pleased you’ve chosen to continue your education and professional development at our world-renowned research institute. I know you will find your studies here both rewarding and fascinating.

IIHR’s mission focuses on education, research, and public service in hydraulic engineering and fluids research. 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 almost-100-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 will have an opportunity to spend time here.

IIHR is a unit of the University of Iowa’s College of Engineering. At IIHR, you’ll find that students, faculty members, and research engineers work together to understand one of the world’s greatest resources—water. You’ll benefit from IIHR’s comprehensive multidisciplinary approach, which includes basic fluid mechanics (including water, air, blood, and more), laboratory experimentation, and computational approaches.

You’ll gain hands-on experience through close cooperation with faculty members on research projects funded by industry, government, and other organizations. Though IIHR is a relatively small organization, it has long played a major role in the worldwide effort to understand and use water and its flow.

A quick note about our name, because so many people ask: originally, IIHR was an acronym for the Iowa Institute of Hydraulic Research. In 2002, our name was officially changed to IIHR—Hydroscience & 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 the past century’s achievements.

Again, welcome to IIHR and to an exciting new chapter in your academic life! I look forward to getting to know you better as the year progresses. Please do not hesitate to meet with me if I can help in any way.

Gabriele Villarini

P.S. The information in this brochure can be found online at:

- www.iihr.uiowa.edu/facilities/support-services/documents
The IIHR staff includes skilled individuals from various disciplines:

- Research engineers 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
  - Editorial and design assistance with posters, presentations, and publications
  - 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 interests. 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.
IIHR FACILITIES

Iowa Geological Survey Building — igs
2390 Old Farmstead Rd., UI Research Park

Hydraulics Annex 1 — HA1
2310 Old Farmstead Rd., UI Research Park

Hydraulics Annex 2 — HA2
2275 Old Farmstead Rd., UI Research Park

Hydraulics Wave Basin Facility — HWBF
Old Farmstead Rd., UI Research Park

James Street Laboratory — JSL
2421 James Street #3, Coralville
GABRIELE VILLARINI
107c SHL 384-0596
gabriele-villarini@uiowa.edu
- Hydrometeorology, climatology, extreme events, climate change, hurricanes, seasonal forecast, remote sensing of rainfall, and applied statistics
- PhD, University of Iowa, 2008
- Associate Professor, CEE
- Interim Director, IIHR

ANTONIO ARENAS AMADO
323A SHL 335-6061
antonio-arenasamado@uiowa.edu
- Fish passage design, physically-based watershed simulations, and total dissolved gas modeling
- PhD, University of Iowa, 2012
- Assistant Research Engineer, IIHR

KELLY BAKER
5316 CPHB 384-4008
kelly-k-baker@uiowa.edu
- Occupational and environmental health
- Assistant Professor, OEH

ART BETTIS
209 TH 335-1851
art-bettis@uiowa.edu
- Reconstruction of past landscapes using physical and geochemical data, documenting rates of dust flux during the last glacial period, and restoration strategies for rivers and streams
- PhD, University of Iowa, 1995
- Professor, EES

ALLEN BRADLEY JR.
523A SHL 335-6117
allen-bradley@uiowa.edu
- Hydrology, hydroclimatology, and watershed modeling
- PhD, University of Wisconsin-Madison, 1992
- Professor, CEE

JAMES BUCHHOLZ
323B SHL 335-5224
james-h-buchholz@uiowa.edu
- Unsteady aerodynamics of biologically-inspired underwater and aerial vehicles, urban microclimate and transport phenomena, and cardiovascular fluid mechanics
- PhD, Princeton University, 2006
- Associate Professor, MIE

PABLO CARRICA
223D SHL 335-6381
pablo-carrica@uiowa.edu
- Multiphase flow, computational fluid dynamics, and boiling and heat transfer
- PhD, Instituto Balseiro (Argentina), 1995
- Professor, MIE

KUNG-SIK CHAN
241 SH 335-2849
kung-sik-chan@uiowa.edu
- Time series analysis, chaos, semiparametric statistics, stochastic differential equations, stochastic processes, and ecological modeling
- PhD, Princeton University, 1986
- Professor, SAS
GEORGE CONSTANTINESCU
323C SHL  384-0630
george-constantinescu@uiowa.edu
Computational fluid dynamics, river mechanics, turbulence, and hydraulics
PhD, University of Iowa, 1997
Professor, CEE

DAVID CWIERTNY
4136 SC  335-1401
david-cwiertny@uiowa.edu
Pollutant fate and transport, and water and watershed treatment
PhD, Johns Hopkins University, 2006
Associate Professor, CEE

KAJSA DALRYMPLE
W339 AJB  335-3360
kajsa-dalrymple@uiowa.edu
Intersections between science, communication, and public policy
PhD, University of Wisconsin-Madison, 2011
Assistant Professor, JMC

CAROLINE A. DAVIS
112 OIGS  335-1571
caroline-davis@uiowa.edu
Water quality, nutrient fate and transport, biogeochemistry, and near-surface environmental geophysics
PhD, University of Missouri-Rolla, 2009
Assistant Research Scientist, IIHR

IBRAHIM DEMIR
314 SHL  335-5780
ibrahim-demir@uiowa.edu
Environmental information systems, data informatics, scientific visualization, data management, and web-based systems
PhD, University of Georgia, 2010
Assistant Professor, CEE

JEFF DORALE
35A TH  335-0822
jeffrey-dorale@uiowa.edu
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

WILLIAM EICHINGER
523E SHL  335-6034
william-eichinger@uiowa.edu
Environmental hydrology and fluid dynamics, surface-atmosphere interactions, atmospheric pollution control and remediation, atmospheric physics, and remote sensing
PhD, University of California-Davis, 1995
William D. Ashton Professor of Civil Engineering: Professor, CEE
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
- Associate Professor, CHEM

CASEY HARWOOD
225F Shl
casey-harwood@uiowa.edu
- Experimental fluid dynamics, fluid-structure interactions, lifting surfaces and propellers
- PhD, University of Michigan, 2014
- Assistant Professor, MIE

KERI HORNBUCKLE
4126 Sc       384-0789
keri-hornbuckle@uiowa.edu
- Cycling of organic contaminants in the Great Lakes, air pollution, and environmental engineering
- PhD, University of Minnesota, 1996
- Donald E. Bently Professor in Engineering; Professor and Chair, CEE; and Associate Dean for Academic Programs, College of Engineering

CHRIS JONES
332 Th       335-0589
christopher-s-jones@uiowa.edu
- Water quality
- PhD, Montana State University-Bozeman, 1989
- Research Engineer, IIHR, and Adjunct Associate Professor

CRAIG JUST
4111 Sc       335-5051
craig-just@uiowa.edu
- Measuring water quality at rapid intervals, using mussels as living biosensors, and the fate of pharmaceuticals in non-conventional wastewater treatment systems
- PhD, University of Iowa, 2001
- Assistant 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

ANTON KRUGER
523C Shl       335-6287
anton-kruger@uiowa.edu
- Hydrometeorology instrumentation, particle image velocimetry and image processing, and visualizing and managing large geographic datasets
- PhD, University of Iowa, 1991
- Donald E. Bently Faculty Fellow of Engineering; and Professor, ECE

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
GREGORY LEFEVRE
4106 SC  335-5655
gregory-lefevre@uiowa.edu
 ■ Fundamental mechanisms related to the microbial and vegetative biotransformation of emerging contaminants in aquatic environments
 ■ PhD, University of Minnesota, 2012
 ■ Assistant Professor, CEE

HANS-JOACHIM LEHMLER
221 IREH  335-4310
hans-joachim-lehmler@uiowa.edu
 ■ 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
 ■ Associate Professor, OEH

JIAJIA LI
223-1 SHL  385-9410
jiajia-li@uiowa.edu
 ■ PhD, University of Iowa, 2015
 ■ Assistant Research Engineer, IIHR

CHING-LONG LIN
2406 SC  335-5673
ching-long-lin@uiowa.edu
 ■ 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 L. Harding Professor of Mechanical and Industrial Engineering; and Professor, MIE

RICHARD MANTILLA
523B SHL  335-5941
ricardo-mantilla@uiowa.edu
 ■ Surface hydrology and river networks
 ■ PhD, University of Colorado, 2006
 ■ Assistant Professor, CEE

RACHEL MAREK
4105 SC  335-5585
rachel-f-marek@uiowa.edu
 ■ PCBs
 ■ PhD, University of Iowa, 2013
 ■ Assistant Research Engineer, IIHR

COREY MARKFORT
523E SHL  335-6168
corey-markfort@uiowa.edu
 ■ 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
 ■ Assistant Professor, CEE

EZQUEL MARTIN
423B SHL  335-6022
juan-martin@uiowa.edu
 ■ CFD and EFD
 ■ PhD, University of Illinois-Urbana-Champaign, 2009
 ■ Assistant Research Engineer, IIHR
ANDRES MARTINEZ ARANEDA
4105 SC  335-6454
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■ Environmental contaminant fate and transport modeling, with emphasis in analyzing and simulating the behavior of organic pollutants in urban, remote, and industrial areas
■ PhD, University of Iowa, 2010
■ Adjunct Assistant Professor, CEE; and Associate Research Engineer, IIHR

TIM MATTES
4111 SC  335-5065
tim-mattes@uiowa.edu
■ 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
■ Associate Professor, CEE

MARIAN MUSTE
302 SHL  384-0624
marian-muste@uiowa.edu
■ Experimental methods in hydraulics and fluid mechanics, sediment transport, environmental fluid mechanics, and engineering education
■ PhD, University of Iowa, 1995
■ Adjunct Professor, CEE, and Research Engineer, IIHR

JAMES NIEMEIER
2 HWTA  384-2918
james-niemeier@uiowa.edu
■ Water quality, nutrient fate and transport, biogeophysics, and near-surface environmental geophysics
■ PhD, University of Iowa, 2010
■ Assistant Research Scientist, IIHR

JACOB ODGAARD
4114 SC  335-5213
jacob-odgaard@uiowa.edu
■ Hydraulic modeling and engineering, hydroinformatics, environmental fluid mechanics, river engineering, river mechanics, sediment management in rivers, Iowa vanes, stream bank erosion protection, and fish passage facilities
■ PhD, Technical University of Denmark, 1966
■ Professor, CEE

ELISE PIZZI
321 SH  335-3260
elise-pizzi@uiowa.edu
■ Water sustainability
■ PhD, University of Colorado-Boulder, 2015
■ Assistant Professor, PS

MARCIELA POLITANO
310 SHL  335-6593
marcela-politano@uiowa.edu
■ Total dissolved gas modeling, two-phase flow modeling, numerical modeling of hydraulic transients, particle tracking and dispersion, heat and mass transfer, and computational fluid dynamics
■ PhD, Instituto Balseiro (Argentina), 2001
■ Adjunct Associate Professor, CEE, and Research Engineer, IIHR
<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Phone</th>
<th>Email</th>
<th>Department and Affiliations</th>
</tr>
</thead>
</table>
| **NIRMAL RAI**              | 3131 SC | 319-467-4572 | nirmalkumar-rai@uiowa.edu | Computational mechanics  
PhD, University of Iowa, 2015  
Assistant Research Engineer, IIHR |
| **YUGO SANADA**             | 1 HWBA | 319-467-4572 | yugo-sanada@uiowa.edu | Ship hydrodynamics  
PhD, Osaka University, Japan, 2007  
Associate Research Scientist, IIHR |
| **MICHELLE SCHERER**        | 4105 SC | 335-5654 | michelle-scherer@uiowa.edu | 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 and DEO, 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;  
Adjunct Assistant Professor, natural resource ecology and management, Iowa State University; Associate State Geologist, Iowa Geological Survey; Research Engineer, IIHR |
| **JERRY L. SCHNOOR**        | 4112 SC | 335-5649 | jerald-schnoor@uiowa.edu | Water quality, phytoremediation, and climate change  
PhD, University of Texas, 1975  
Allen S. Henry Chair in Engineering; and Professor, CEE |
| **ANANYA SEN GUPTA**        | 4326 SC | 335-5947 | ananya-sengupta@uiowa.edu | Shallow water acoustic channel estimation and tracking, interference mitigation in multi-user detection and equalization  
PhD, University of Illinois-Urbana-Champaign, 2006  
Assistant Professor, ECE |
SILVIA SECCHI
Associate Professor of Geographical and Sustainability Sciences
219 JH  319-335-1927
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
Associate Professor, GSS

BONGCHUL SEO
323D SHL  384-2041
bongchul-seo@uiowa.edu
Radar hydrology and rainfall uncertainties
PhD, University of Iowa, 2010
Assistant Research Scientist, IIHR

CHARLES STANIER
4122 SC  335-1399
charles-stanier@uiowa.edu
Laboratory investigation and field sampling of air pollution, particularly aerosol particles, computation simulations of atmospheric, aerosol chemistry, and health effects of airborne contaminants
PhD, Carnegie Mellon University, 2003
Associate Professor, CEE

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, MIE

ERIC TATE
502 JH  335-0259
eric-tate@uiowa.edu
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
Assistant Professor, GSS

H.S. UDAYKUMAR
2408 SC  384-0832
hs-kumar@uiowa.edu
Numerical methods to 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, MIE
IIHR RESEARCH ENGINEERS & RESEARCH SCIENTISTS

SARAH VIGMOSTAD
1420 SC  384-2008
sarah-vigmostad@uiowa.edu
- Computational fluid mechanics, cardiovascular biomechanics, multiscale modeling, fluid-structure interactions
- PhD, University of Iowa, 2007
- Associate Professor, BE

ZHAOYUAN WANG
223E SHL  335-6293
zhaoyuan-wang@uiowa.edu
- 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

LARRY J. WEBER
306 SHL  335-5597
larry-weber@uiowa.edu
- 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; and Professor, CEE
- Executive Associate Dean, College of Engineering

FRANK H. WEIRICH
217 TH  335-0156
frank-weirich@uiowa.edu
- 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

HYUNSE YOON
223-4 SHL  335-5257
hyun-se-yoon@uiowa.edu
- Ship hydrodynamics
- PhD, University of Iowa, 2009
- Assistant Research Scientist, IIHR

SUNG-HWAN YOON
223B-6 SHL  384-2191
sung-hwan-yoon@uiowa.edu
- Numerical methods for multi-dimensional, multi-phase flows, and computational fluid dynamics
- PhD, Seoul National University, (Korea), 2011
- Assistant Research Scientist, IIHR

NATE YOUNG
423C SHL  384-1732
nathan-young@uiowa.edu
- Ecohydraulics, field measurements, and freshwater mussel habitats
- PhD, University of Iowa, 2006
- Adjunct Associate Professor, CEE; Research Engineer, IIHR; and Director, LACMRERS
Dear New IIHR Students and Staff,

Welcome to IIHR! We’d like to introduce you to the administrative staff at IIHR; administrative staff members conduct essential activities that support the research, education, and service that are at the core of IIHR’s mission. The work falls into two main categories:

General Administration: Carmen Langel, director of development and communications, leads administrative staff who perform duties related to external communication (i.e., the website, newsletters, brochures, etc.), internal communications (i.e., IIHR Weekly Update emails), development (grant preparation, fundraising, etc.); and university and IIHR policy questions in these areas. Langel works closely with IIHR research staff to develop and submit grant and contract proposals. In addition, administrative staff members plan and set up meetings and presentations, serve as IIHR’s immigration liaison, and act as point of contact to schedule meetings with IIHR Director Larry Weber.

Accounting/Finance: Teresa Gaffey, director of finance and business operations, manages and coordinates all IIHR financial operations, budgets, grants, reports, and activities. She and her team process staff and student employment paperwork and tuition payments. They also provide accounting support services as needed, including the processing of travel vouchers, payroll, purchasing requisitions, procurement card expenses, and reimbursements. Accounting staff members also collect payments from staff and students for personal printing, fax, and copy charges, as well as distributing office and building keys.

Please contact us with any 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

Carmen Langel
Director of Development and Communications
107B SHL
335-5841
carmen-langel@uiowa.edu
ADMINISTRATIVE STAFF

**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.

**MELISSA ECKRICH**
Senior Accountant
133-8 SHL  335-5845
melissa-eckrich@uiowa.edu

- Provides accounting services, including processing employment paperwork, payroll, and grant and contract management.

**SANDY GERARD**
Human Resources Administrator
College of Engineering
1 HWTA  335-5217
sandra-gerard@uiowa.edu

- Provides human resource support for IIHR faculty and staff in the areas of recruiting, hiring, and on-boarding; performance management and classification review; staff retention, recognition, and leave management; and other personnel matters.

**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.

**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**
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.

**MEGAN WATSON**
Supply Chain Associate
University Shared Services
133-2 SHL  335-5272
megan-watson@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

**CARMEN LANGEL**  
Director of Development and Communications  
107B SHL  335-5841  
carmen-langel@uiowa.edu  
- Manages all IIHR grant and contract submissions and oversees internal and external communications.

**URSULA FERRIER**  
100 SHL  335-5237  
ursula-ferrier@uiowa.edu  
- Provides secretarial and reception services, including answering calls; managing building maintenance, ordering office supplies; and more.

**DAVID HERWALDT**  
Creative Media Specialist  
133-5 SHL  335-5226  
david-herwaldt@uiowa.edu  
- Designs posters, logos, brochures, presentations, and more; consults on design and graphic arts software use; photographs IIHR people and activities.

**ASHLEE JOHANNES**  
Outreach Coordinator, IWA Flood Resilience Program  
133-1 SHL  384-1730  
ashlee-johannes@uiowa.edu  
- Coordinates flood resilience activities with partner organizations and stakeholders.

**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.

**ANGI ROEMERMAN**  
Research Support Specialist  
107 SHL  335-5233  
angela-roemerman@uiowa.edu  
- Provides pre- and post-award grant support management.

**BREANNA SHEA**  
Public Relations Coordinator, Iowa Flood Center  
133-7 SHL  384-1729  
breanna-shea@uiowa.edu  
- Develops and implements communication and outreach programs for the Iowa Flood Center (IFC) and the Iowa Watershed Approach (IWA).

**JACKIE HARTLING STOLZE**  
Lead Communication Specialist  
133-6 SHL  335-6410  
jackie-stolze@uiowa.edu  
- Develops content for websites, newsletters, brochures, and other IIHR communications. Serves as project manager on major publications and as IIHR archivist.
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 activity. 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 provide the support function ourselves.

Please look over the following materials related to the IIHR’s support of research computing and feel free to contact me with any questions you may have. I look forward to working with you.

Sincerely,

Mark Wilson
Director of Research Computing
425A SHL
335-5223
mark-wilson@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 current large node distributed memory systems. Our codes are being implemented on Nvidia Kepler/Xeon Phi highly parallel systems and within various cloud computing environments.

The Neon and Argon clusters are currently the primary central HPC resources, following the recent retirement of our initial HPC system, Helium. Collectively the two systems are composed of over 488 compute nodes with more than 10,640 processor cores. Each system has an internal high performance message-passing network (Infiniband and Omnipath), and the two systems are networked by trunked high speed 10Gb Ethernet links.

Both Neon and Argon are 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.

NEON CLUSTER

The older HPC system, Neon, came on line in December 2013 to augment HPC resources available to IIHR researchers. Like Helium before it, Neon is operated by IIHR—Hydroscience & Engineering in conjunction with ITS and a collaborative group of researchers from around the university. Neon is a shared system with, currently, 4,256 standard cores, 2,280 Xeon Phi cores, 27 TB memory, 500 TB of storage, and 40 Gbps Infiniband QDR message passing fabric.

ARGON CLUSTER

The newest HPC system, Argon, came on line 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, 6,400 standard cores, 2,280 Xeon Phi cores, 58 TB memory, 100 TB of NFS scratch storage, and 100 Gbps Omnipath message passing fabric with a 5:1 oversubscription. Users have a 1 TB home directory allocation.

RESOURCES, EQUIPMENT, SERVICES, & SOFTWARE

The following is a description of 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.
Eighty Linux workstations and more than 300 individual PCs running MS Windows 7 support the local centralized facilities. There are 30 PC-based servers handling web, FTP, security, and specialized database services. Many of the servers are virtualized using VMware hosts at IIHR and the centralized Information Technology Facility (ITF). 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 that include Tecplot, Gridgen, Fluent, FlowLab, Matlab, Origin, ERDAS, ER Mapper, 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

**MARK WILSON**
Principal Engineer, Director of Research Computing
423A SHL   335-5223
mark-wilson@uiowa.edu

- Administers all research-oriented computing at IIHR, including experimental data acquisition design, computation, assistance with complex computational fluid dynamics (CFD) flow models, and systems and network administration. Supervises research computer support staff and student technical assistants.

**BRIAN MILLER**
Senior Systems Administrator
423F 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
423-3 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.

**JACOB KING**
Applications Developer
423-1 SHL   335-6272
jacob-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 work environment for all who work, study, or conduct research using the facilities and/or assistance of the IES staff.

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
Director of Engineering Services
519 SHL
335-5319
troy-lyons@uiowa.edu

IIHR ENGINEERING SERVICES

OVERVIEW

IIHR Engineering Services (IES) staff support IIHR research and educational activities in the laboratories, as well as in the field. Staff develop, construct, and maintain research apparatus, equipment, models, and facilities to support IIHR’s educational and research mission. Staff strive to achieve these goals in the most responsive, accurate, efficient, and cost-effective means possible.

Key resources included in the IES group include IIHR’s Mechanical, Electronics, and Machine Shops, located in the South Campus annexes. The IES group currently employs 11 full-time staff and six undergraduate student employees. Please visit the IIHR website for a complete list, description, and interactive map of the facilities:

http://www.iihr.uiowa.edu/facilities/
MECHANICAL SHOP HOURS
7:30 AM – 5 PM, Monday – Thursday
7:30 AM – 4:30 PM, Friday

IIHR buildings are open during these 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 Jesse Bries if it is beyond 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 and 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. IIHR has strict boat operator requirements and can provide a qualified boat operator with advance notice. Boat operator training can be provided on an as-needed basis for longer term projects. Coordinate training through Troy Lyons.

RECHARGE RATES
IIHR maintains a wide variety of equipment and instrumentation, including state-of-the-art survey equipment, flow meters, velocity meters, generators, boats, vehicles, trailers, field laptops, and many other items. Each is available for lease to projects on a first-come, first-served basis. The revenue generated from use of this equipment is used to maintain existing equipment in good working order, update equipment as needed, and invest in additional equipment. See Jesse Bries regarding rates, reservations, and use of the equipment.
IIHR ENGINEERING SERVICES

TROY LYONS, M.S., P.E.
Principal Engineer,
Director of Engineering Services
519 SHL 335-5319
troy-lyons@uiowa.edu
- Directs engineering support services related to design and conduct of hydraulic model studies, laboratory research, and field work. Serves as PI on numerous projects and contracts. Oversees IIHR facilities.

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

VACANT
Hydraulic Engineer
- 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.

JESSE BRIES
Electronics Shop Manager
HWTA 335-5004
jesse-bries@uiowa.edu
- Provides support for development and application of electronics and instrumentation. Also oversees IIHR’s equipment inventory, boats, and laser safety program.
IIHR ENGINEERING SERVICES

ROBERT NACE
Assistant Shop Manager
HLMA    335-5249
robert-r-nace@uiowa.edu

- Provides support for laboratory model construction, including carpentry, welding, machining, and metal-working.

BEN ABBOTT
Engineering Assistant
14 HWTA    335-5245
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
Drafter
HWMA 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
HLMA    335-5245
richard-saeugling@uiowa.edu

- Provides general support for laboratory model construction, including welding, carpentry, and metal-working.

DEB WILLIARD
EES Laboratory Director
4105 SC    384-2051
deborah-williard@uiowa.edu

- Provides oversight and support of IIHR’s environmental research laboratories, including maintenance of advanced analytical instruments, training, and safety.
East on I-80 to exit 271 (HWY 38S)
South on 38S to HWY 61
Left on HWY 61
Right on University Drive
Left on HWY 22

Drive through Fairport (about 6 miles)
Immediately after Marina sign, turn right into LACMRERS and Fish Hatchery driveway
LACMRERS is on right of driveway

Stanley Hydraulics Lab
SHL; 320 S. Riverside Drive, Iowa City

Hydraulics Model Annex
HMA; 129 W. Court Street, Iowa City

Hydraulics East Annex
HEA; 140 W. Harrison Street, Iowa City

Hydraulics Wind Tunnel Annex
HWTA; 130 W. Harrison Street, Iowa City

Iowa Geological Survey Building
OIGS; 2390 Old Farmstead Rd., UI Research Park

Hydraulics Annex 1
HA1; 2310 Old Farmstead Rd., UI Research Park

Hydraulics Annex 2
HA2; 2275 Old Farmstead Rd., UI Research Park

Hydraulics Wave Basin Facility
HWBF; Old Farmstead Rd., UI Research Park

James Street Laboratory
JSL; 2421 James Street #3, Coralville

LACMRERS

3388 HWY 22; Muscatine