ABOUT YOUR DEPARTMENT LEADS | Autumn 2024

The Department lead/chair role at ASDRP spans both a technical lead and an administrative lead role. All three department chairs at ASDRP operate their own research groups.

COMPUTER SCIENCE & ENGINEERING

Larry McMahan, PhD (Quantum Physics, Machine Learning) - The McMahan group works on machine learning, quantum mechanics, and electrical engineering. No prerequisites, though prior coding experience and the ability to conduct logical reasoning is a plus. Must be excited about research! Email Dr. McMahan at larry.mcamahan@asdrp.org for an interview.. **Group website: https://sites.google.com/asdrp.org/mcmahan**

BIOLOGICAL AND LIFE SCIENCES

John Wang, PhD (Molecular Biology) - Email Dr. Wang at john.wang@asdrp.org with a CV if you are interested in joining. The Wang lab is developing precision diagnostics and molecular tools for cancer diagnostics and antibody-based therapeutics. Additionally, Dr. Wang's group uses a combination of protein engineering, cell biology, genetic engineering, and molecular biology tools to develop antibody functionalization strategies that enable preparation of therapeutics. **Group Website: https://sites.google.com/asdrp.org/wang**

CHEMISTRY, BIOCHEMISTRY & PHYSICS

Edward Njoo, PhD (Organic Chemistry) - Email Dr. Njoo at edward.njoo@asdrp.org if you are interested in joining. Five openings, preferentially taking sophomores and juniors (and exceptional freshmen) who are serious and committed to year-round research in synthetic & physical organic chemistry. Must be willing to juggle multiple projects at once and must be committed to 20+ hours of laboratory research per week. By interview only, email njoogroup@asdrp.org and CC edward.njoo@asdrp.org to set up an interview. No prior research experience needed, just the willingness to learn a LOT and to work very hard who are comfortable being in a vibrant, elite, and dynamic group deeply passionate about molecular science. **Group website: www.njoolab.org / PW:WeAreASDRP**

Faculty Research Group Directory, *Autumn 2024*

Asterisk (*) denotes remote researchers OK.

Highlighted rows indicate Department Chair

Investigator	Department	Field	Link(s)
Akl, Marx*	CSEN	Quantum Mechanics, Machine Learning, Comp Physics	marx.akl@asdrp.org **Group Website**
Amadi, Michael	BIOL	Biotechnology	michael.amadi@asdrp.org **Group Website**
Brah, Harman*	CHEM	Biophysics	harman.brah@asdrp.org **Group Website**
Chen, Zane	CHEM	Biochemistry	zane.chen@asdrp.org **Group Website**
Cunha, Clinton*	BIOL	Bioinformatics, Cancer Biology	clinton.cunha@asdrp.org **Group Website**
DeGrendele, Chris*	CSEN	Applied Physics & Mathematics	chris.degrendele@asdrp.org **Group Website**
Downing, Robert*	CSEN	Data Science, Machine Learning	robert.downing@asdrp.org **Group Website**
Jahanikia, Sahar*	BIOL	Cognitive Science, Neuroinformatics	sahar.jahanikia@asdrp.org **Group Website**
Kushnerov, Martin	BIOL	Bioinformatics, Genetics	martin.kushnerov@asdrp.org **Group Website**
Laurienzo, Joseph*	CSEN	Applied Mathematics, Cognitive Informatics	joseph.laurienzo@asdrp.org **Group Website**
Lamichhane, Prabin*	CSEN	Data Science	prabin.lamichhane@asdrp.org **Group Website**
Liu, Dennis*	CSEN	Computer Science Software Engineering	dennis.liu@asdrp.org **Group Website**
Liu, Viktoriia*	CSEN	Applied physics,	viktoriia.liu@asdrp.org

		machine learning	**Group Website**
McMahan, Larry*	CSEN	Machine Learning, Quantum Mechanics	larry.mcmahan@asdrp.org **Group Website**
Mui, Phil*	CSEN	Artificial Intelligence, Machine Learning	phil.mui@asdrp.org **Group Website** *On leave, not taking students.*
Njoo, Edward	CHEM	Organic Chemistry, Chemical Biology	edward.njoo@asdrp.org **Group Website**
Pazzi, Joey	CHEM	Biomedical engineering	joey.pazzi@asdrp.org **Group Website**
Poudyal, Bharat	BIOL	Biotechnology	bharat.poudyal@asdrp.org **Group Website**
Qin, Huifang*	CSEN	Artificial Intelligence	huifang.qin@asdrp.org **Group Website**
Renganathan, Gayathri	CHEM	Biochemistry & Pharmacology	gayathri.renganathan@asdrp.org **Group Website**
Salgotra, Vasudha	CHEM	Analytical	vasudha.salgotra@asdrp.org **Group Website**
Starostina, Nataliya	CSEN	Materials Science	nataliya.starostina@asdrp.org **Group Website**
Subramaniam, Suresh*	CSEN	Data Science	suresh.subramaniam@asdrp.org **Group Website**
Wang, John	BIOL	Molecular Biology	john.wang@asdrp.org **Group Website**
Yamamoto, Akira	CHEM	Biomaterials Engineering	akira.yamamoto@asdrp.org **Group Website**
Zhang, Tracy	BIOL	Cancer Biology	tracy.zhang@asdrp.org **Group Website**

Group Descriptions

Marx Akl, PhD | Density Functional Theory / Quantum Mechanics | marx.akl@asdrp.org
Email Dr. Akl at marx.akl@asdrp.org if you are interested in joining his lab.
Dr. Akl received his PhD from the Rensselaer Polytechnic Institute in Physics, and currently teaches at community colleges around the Bay Area. Dr. Akl's primary area of research is in using machine learning to identify ways to linearize density functional theory (DFT) calculations to understand electronic structure of novel nano and inorganic materials with unique physical properties.
Link to Group Website: https://sites.google.com/asdrp.org/akl

Michael Amadi, MS | Synthetic Biology & Biotechnology | michael.amadi@asdrp.org
Email me at michael.amadi@asdrp.org you'd like to join the Amadi lab.
The Amadi lab works on developing biotechnology solutions for a variety of societal problems including agriculture/agritech and genomics and disease detection. Tools used include genetic engineering, metabolomics by mass spectrometry, etc.
Link to Group Website: https://sites.google.com/asdrp.org/amadi

Harman Brah, MD | Biophysics & Computational Biochemistry | harman.brah@asdrp.org
Remote researchers OK. Email Dr. Brah at harman.brah@asdrp.org for an interview request.
The Brah group at ASDRP uses computer modeling and simulations to develop next-generation small molecule therapeutics targeting cancer, Alzheimer's disease, obesity, and more. This is accomplished through high throughput virtual screening and molecular dynamics simulations.
Link to Group Website: https://sites.google.com/asdrp.org/brah

Zane Chen, MD, PhD | Cancer Biochemistry, Molecular Biology | zane.chen@asdrp.org
Email Dr. Chen at zane.chen@asdrp.org if you are interested in joining.
Dr. Chen received his MD, PhD from Oregon Health Sciences University where he elucidated the mechanism of carnitine acetyltransferase enzymes. At ASDRP, Dr. Chen's lab interfaces biochemistry and molecular biology to address cell signaling pathways relevant in human diseases, particularly in cancers and in metabolic disorders related to diabetes.
Link to Group Website: Link to Group Website: https://sites.google.com/asdrp.org/chen-lab-asdrp

Clinton Cunha, MS | Bioinformatics & Cancer Biology | clinton.cunha@asdrp.org
Must be interested in interfacing bioinformatics and cancer biology. Email clinton.cunha@asdrp.org.
The Cunha lab is interested in applying heavy duty data analysis and bioinformatics towards understanding

gene expression and regulation patterns in colorectal cancer cells as a means to informing the next questions in cancer therapeutics.
Link to Group Website: https://sites.google.com/asdrp.org/cunha

Chris DeGrendele, PhD | Applied Physics | chris.degrendele@asdrp.org
Email Mr. DeGrendele at chris.degrendele@asdrp.org for permission to join.
The DeGrendele lab works on developing models for fluid dynamics that help to simulate challenging physical environments. We are looking for enthusiastic theoretical physicists and those interested in the intersection of applied mathematics and applied physics!
Link to Group Website: https://sites.google.com/asdrp.org/degrendele

Robert Downing, MS | Data Science & Machine Learning | robert.downing@asdrp.org
No email necessary! Just looking for folks who want to pursue research in data science and its broadest applications.
Prof. Downing's group at ASDRP is a diverse and dynamic group of aspiring data scientists. We see data and machine learning as being central to everything from environmental analysis to neuroscience to decryption of medieval manuscripts to searching the night sky for potentially habitable exoplanets.
Link to Group Website: https://sites.google.com/asdrp.org/downing

Sahar Jahanikia, MS | Cognitive Science & Neuroinformatics | sahar.jahanikia@asdrp.org
Email sahar.jahanikia@asdrp.org for permission to join.
The Jahanikia "neuro lab" at ASDRP embodies cross-disciplinary research in the fields of cognitive science, neuroimaging by fMRI, application development, bioinformatics, and neuroinformatics - using data and cognitive science to understand human behavior.
Link to Group Website: www.jneurolab.org

Martin Kushnerov, MS | Genomics | martin.kushnerov@asdrp.org
Email Mr. Kushnerov at martin.kushnerov@asdrp.org for permission to join.
The Kushnerov lab at ASDRP is recruiting new students interested in doing science at the interface of genetics, genomics, and bioinformatics.
Link to Group Website: https://sites.google.com/asdrp.org/kushnerov

Joseph Laurienzo, MS | Applied mathematics | joseph.laurienzo@asdrp.org
Email asdrp.admin@asdrp.org if you are interested in being a part of Mr. Laurienzo's startup research group.
Mr. Laurienzo received his BS in math and physics and MS in applied math from Case Western Reserve University, along with a BA in Japanese, and has collaborated with the University of Tokyo in condensed matter

physics. Joseph's research interests include the application of novel mathematical techniques in the assessment of brain activity patterns and constructing cognitive and phenomenological models, as well as game theory, and research projects under his supervision will likewise embody this interdisciplinary spirit.
Link to Group Website: https://sites.google.com/asdrp.org/laurienzo

Dennis Liu, MS | Computer Science, Software Engineering | dennis.liu@asdrp.org
Email Mr. Liu at dennis.liu@asdrp.org if you are interested in joining the group.
Dennis Liu, a product of Georgia Tech (Master's in Computer Science) and UC San Diego (cognitive science and computer science) with a specific interest in human-computer interactions. Mr. Liu comes to ASDRP with several years of experience from industry at IBM Quantum and at Vizio.
Link to Group Website: https://sites.google.com/asdrp.org/dennisliu

Viktoriia Liu, PhD | Quantum Mechanics and Computer Science | viktoriia.liu@asdrp.org
Email Dr. Liu at viktoriia.liu@asdrp.org if you are interested in joining the Liu Lab.
Dr. Liu received her PhD in physical chemistry from UC Riverside. Her lab at ASDRP works on using machine learning models to identify applications of multiple regression models and applied artificial intelligence for biological and biomedical applications, particularly focused on cancer detection and pathology detection.
Link to Group Website: https://sites.google.com/asdrp.org/liulab

Larry McMahan, MS, PhD | Quantum Mechanics & Computer Science | larry.mcmahan@asdrp.org
Email Dr. McMahan at larry.mcmahan@asdrp.org if you are interested in joining the McMahan group.
Dr. McMahan's research group at ASDRP focuses on two main arenas of research - quantum mechanics (quantum tunneling and computing) and machine learning platforms that have predictive capabilities in understanding societal phenomena such as crime rates, COVID-19 rates, etc.
Link to Group Website: https://sites.google.com/asdrp.org/mcmahan

Phil Mui, PhD | Artificial Intelligence & Machine Learning | phil.mui@asdrp.org
Email Dr. Mui at phil.mui@asdrp.org for permission to join with a Curriculum Vitae and most recent resume. Links to your personal GitHub would be preferable. Extensive prior coding experience is required.
*Dr. Mui is on sabbatical this Autumn and is not taking students for the Autumn of 2024.
Dr. Mui's research group at ASDRP actively works on a number of areas related to the role of intrinsic biases in artificial intelligence and machine learning algorithms and their impact on society - issues such as biases intrinsic in facial recognition, occupational demographics, and news aggregators.
Link to Group Website: https://sites.google.com/asdrp.org/mui

Edward Njoo, PhD | Organic & Medicinal Chemistry | edward.njoo@asdrp.org
Email Dr. Njoo at edward.njoo@asdrp.org to request permission to join and to schedule an interview.
The Njoo group at ASDRP focuses on organic chemistry as a means of developing next-generation small molecule therapeutics, identifying strategies for natural product total syntheses, developing more efficient catalyst platforms for C-C and C-F bond formation events, and using benchtop NMR for mechanistic probing and real time reaction monitoring.
Link to Group Website: www.njoolab.org

Joseph Pazzi, PhD | Bioengineering | joey.pazzi@asdrp.org
Dr. Joseph Pazzi received his PhD in bioengineering from UC Merced, where he is currently an adjunct professor. Joey has nearly a decade of experience in industry and in academic life science R&D and is starting up his research group here at ASDRP, where students will work on developing giant unilamellar vesicles (GUV's) and lignin-based biopolymers for new applications in drug delivery and medical diagnostics
Link to Group Website: https://sites.google.com/asdrp.org/pazzi

Bharat Poudyal, PhD | Biotechnology & Agronomy | bharat.poudyal@asdrp.org
No need to email! Dr. Poudyal is a new faculty member at ASDRP! No email required.
The Poudyal lab at ASDRP is a startup lab and is recruiting new students interested in doing science at the interface of biotechnology, plant biology, sustainable practice, and human health.
Link to Group Website: https://sites.google.com/asdrp.org/poudyal

Huifang Qin, MS, PhD | Artificial Intelligence | huifang.qin@asdrp.org
Dr. Qin is a new faculty member at ASDRP! Please email asdrp.admin@asdrp.org for permission to join.
Dr. Qin received her PhD from UC Berkeley and has several years of experience in applied data science and machine learning models in industry. She is starting up several projects and is hoping to recruit ASDRP students interested in applied machine learning.
Link to Group Website: https://sites.google.com/asdrp.org/qin

Gayathri Renganathan, MPharm | Biochemistry & Chemical Biology | gayathri.renganathan@asdrp.org
Preferably sophomores or juniors interested in biomedical science. Seniors by interview only. Ms. Renganathan's research group focuses on using biochemistry and chemical biology to design and develop systems for biomedical application, including drug delivery, pharmaceutical analysis, lipid nanoparticle synthesis, and natural product / pharmacology research.
Link to Group Website: https://sites.google.com/asdrp.org/renganathan

Vasudha Salgotra, MS | Bioanalytical Chemistry | vasudha.salgotra@asdrp.org

Email Ms. Salgotra at vasudha.salgotra@asdrp.org for permission to join.

Vasudha Salgotra is a research professional with a background in analytical chemistry and pharmacy. Her lab works on validating plate-based immunoassays (ELISAs) and other bioanalytical techniques to study the binding affinity of drugs to targets, and to study the absorption, distribution, metabolism, and excretion (ADME) properties to understand the pharmacokinetics of the compounds. Additionally this lab will focus on the use of in silico modeling software, in vitro experiments in the lab, and in vivo studies in animals to study the pharmacokinetic properties of small molecules and biologics.

Link to Group Website: https://sites.google.com/asdrp.org/salgotra

Nataliya Starostina, MS, PhD | Materials Science, Materials Engineering

Dr. Starostina is an expert in inorganic material, metallurgical engineering, and using electron microscopy to study nanomaterials. Dr. Starostina recently joined the faculty at ASDRP this Autumn, and will be leading a group on developing next generation inorganic materials.

Link to Group Website: https://sites.google.com/asdrp.org/starostina

Suresh Subramaniam | Data Science | suresh.subramaniam@asdrp.org

Email suresh.subramaniam@asdrp.org if you would like; otherwise, no email required and you may indicate on the transition form.

The Subramaniam group at ASDRP works on a variety of real-world applications of data science, including understanding patterns in COVID-19 spread, the housing market, image analysis and facial feature / emotion recognition platforms.

Link to Group Website: https://sites.google.com/asdrp.org/subramaniam

John Wang, PhD | Molecular & Cellular Biology | john.wang@asdrp.org

Email Dr. Wang at john.wang@asdrp.org with a CV if you are interested in joining.

The Wang lab is developing precision diagnostics and molecular tools for cancer diagnostics and antibody-based therapeutics. Additionally, Dr. Wang's group uses a combination of protein engineering, cell biology, genetic engineering, and molecular biology tools to develop antibody functionalization strategies that enable preparation of therapeutics.

Link to Group Website: https://sites.google.com/asdrp.org/wang

Akira Yamamoto, MS | Biomaterials Engineering | akira.yamamoto@asdrp.org

Email akira.yamamoto@asdrp.org with a resume / CV if you are interested in joining my lab. Must be willing to spend lots of time in the laboratory working on VERY cool bioengineering and biomaterials projects!

The Yamamoto group at ASDRP is involved in working on engineering biomaterials and developing bioanalytical methods for application in the life sciences. Current projects include HPLC method development for ion pair analysis, site-specific antibody modification, RNA condensation, and photocurable hyaluronic acid hydrogel materials.

Link to Group Website: https://sites.google.com/asdrp.org/yamamoto

Tracy Zhang, PhD | Cancer Biology & Oncology | tracy.zhang@asdrp.org
Email a CV to tracy.zhang@asdrp.org for permission to join.
Dr. Zhang is an experienced molecular & cellular, as well as oncology scientist with more than 10 years of experience in both industry and academia, interested in identifying and developing potent tumor targets and new drug candidates for tumor killing. Dr. Zhang has co-authored over twenty peer-reviewed research articles in cancer biology and molecular medicine.

Link to Group Website: https://sites.google.com/asdrp.org/zhang/home