KIANOUSH FALAHKHEIRKHAH

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Address: 1707 Melrose Village Circle, Urbana, Il, 61801

EDUCATION

University of Illinois at Urbana Champaign
2016 – present

Ph.D. candidate: Chemical Engineering prof. Rohit Bhargava's Lab
Thesis: Engineering the process of cancer diagnosis using Chemical imaging & machine learning

Sharif University of Technology
2012- 2016

Bachelor of Science in Chemical Engineering
Thesis: Developing an object-oriented framework for the analysis of phases equilibrium

EXPERIENCE & RESEARCH

University of Illinois at Urbana-Champaign
Champaign, IL

Research Assistant
2016 – Present

- Collaborated with major health institutions such as Mayo Clinics and MD-Anderson
- Planned and managed multiple research projects for developing machine learning models to enhance the quality of cancer diagnosis
- Advised and mentor 3 high-school, 9 undergraduate, and 4 graduate students

National Center for Supercomputing Applications (NCSA)
Champaign, IL

Research Assistant
2019 – Present

- Developed a generative adversarial network to convert MRI images to MRF
- Established an accurate and reliable MRI reconstruction method based on MRF data
- Collaborated with Mayo Clinic and a team in NCSA for data preparation and model development

UIUC Teacher Assistant
Champaign, IL

Computational Methods in CHBE & 500 level courses
Aug 2017-Dec 2017

- Managed and held 2 lab sessions in a week for 30 undergraduate students to teach python & MATLAB
- Helped students troubleshooting problems encountered during project

Pars Company
Tehran, Iran

Junior Research Scientist
June 2015-Aug 2015

- Used MATLAB to develop computational software for optimization pipe and separator sizing
- Determined the flow to inlet pipe to avoid unfavorable flow patterns

PUBLICATIONS

- **Kianoush Falahkheirkhah,** Tao Guo, Michael Hwang, Pheroze Tamboli, Christopher G. Wood, Jose A. Karam, Kanishka Sircar, and Rohit Bhargava. "A generative adversarial approach to facilitate archival-quality histopathologic diagnoses from frozen tissue sections." *arXiv preprint arXiv:2108.10550* (2021).
- **Kianoush Falahkheirkhah,** Kevin Yeh, Shachi Mittal, Luke Pfister, and Rohit Bhargava. "Deep learning-based protocols to enhance infrared imaging systems." *Chemometrics and Intelligent Laboratory Systems* (2021).
- Rohit Bhargava, and **Kianoush Falahkheirkhah.** "Enhancing hyperspectral imaging." *Nature Machine Intelligence* (2021).
- Eric Zimmermann, Sudipta S. Mukherjee, **Kianoush Falahkheirkhah,** Mark C. Gryka, Andre Kajdacsy-Balla, Wohaib Hasan, George Giraud, Fred Tibayan, Jai Raman, and Rohit Bhargava. "Detection and Quantification of Myocardial Fibrosis Using Stain-Free Infrared Spectroscopic Imaging." *Archives of pathology & laboratory medicine* (2021).
- Martin Schnell, Shachi Mittal, **Kianoush Falahkheirkhah,** Anirudh Mittal, Kevin Yeh, Seth Kenkel, Andre Kajdacsy-Balla, P. Scott Carney, and Rohit Bhargava. "All-digital histopathology by infrared-optical hybrid microscopy." *Proceedings of the National Academy of Sciences* (2020).

- **Kianoush Falahkheirkhah**, Kevin Yeh, Shachi Mittal, Luke Pfister, and Rohit Bhargava. "A deep learning framework for morphologic detail beyond the diffraction limit in infrared spectroscopic imaging." *arXiv preprint arXiv:1911.04410* (2019).

CONFRENCE PRESENTATIONS & POSTERS

- Ghazal Azarfar, **Kianoush Falahkheirkhah,** Meera Gopu, Jennifer Pfister, Sergey V. Brodsky, Tibor Nadasdy, Georgina Cheng, Anjali A. Satoskar, and Rohit Bhargava. "Infrared chemical imaging for histologic interpretation of renal tissue." In *Advanced Chemical Microscopy for Life Science and Translational Medicine* (2021)
- **Kianoush Falahkheirkhah,** Kevin Yeh, Shachi Mittal, Luke Pfister, and Rohit Bhargava. "A Deep Learning Framework to Expedite Infrared Spectroscopy for Digital Histopathology." *International Symposium on Biomedical Imaging (ISBI)* (2020).
- Martin Schnell, Shachi Mittal, **Kianoush Falahkheirkhah,** Anirudh Mittal, Kevin Yeh, Seth Kenkel, Andre Kadjacsy-Balla, P. Scott Carney, and Rohit Bhargava. "Infrared Optical Hybrid (IR-OH) Microscopy for Label-Free Histopathology." *In Frontiers in Optics (*2020).
- **Kianoush Falahkheirkhah,** Kevin Yeh, Rohit Bhargava. "Digital histopathology by stainless stained chemical images." *SPIE Medical imaging* (2019).
- Shachi Mittal, Andre Balla, Luke Pfister, Catalin Stoean, **Kianoush Falahkheirkhah,** and Rohit Bhargava. "Tumor Identification and Grading on Histopathology Images Using Deep Learning." In *LABORATORY INVESTIGATION* (2019)
- **Kianoush Falahkheirkhah,** Kevin Yeh, Shachi Mittal, Rohit Bhargava. "High quality and detail in stainless histopathologic images using mid- infrared spectroscopic images." *SPIE Photonic West* (2017).

RELEVENT SKILLS

- **Programming:** Python, PyTorch, MATLAB, C++, C, NumPy/SciPy, Scikit-Learn
- **Other skills:** Computer vision, Artificial intelligence, Statistical learning, Deep Learning, Data Analysis, signal processing

HONORS & AWARDS

- Thomas and Margaret Huang Award for Graduate Research   *April 2021*
- Medical imaging best poster award   *Feb 2019*

LEADERSHIP

Iranian Cultural Association   Champaign, IL
Officer Board – Vice President & Secretary   *2017– 2018*
- Create effective budget plans to ensure funding is available throughout the year
- Coordinate and Market all fundraising events for the society utilizing various social media channels

REFERENCE

- Available upon request