**Chen Liu**

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**EDUCATION**

**Yale University**, Ph.D. in Computer Science New Haven, CT. Aug 2022 – May 2028 (Expected)

Graph representation learning for methodology development in computational biology. Advisor: Dr. Smita Krishnaswamy.

**Columbia University**,M.S. in Electrical EngineeringNew York, NY. Aug 2018 – Feb 2020

Nikola Tesla Electrical Engineering Scholar (“to the most exceptional applicants”, top 10% among those admitted)

**Bucknell University**,B.S. in Electrical Engineering, Minor in Biomedical Engineering Lewisburg, PA. Aug 2014 – May 2018

Tau Beta Pi Honor, Alpha Lambda Delta Honor, Engineering Dean’s List (all semesters)

**ACADEMIC SERVICES**

* **Outstanding reviewer award** at *ICML* 2022(top 10%).Invited as a session chair.
* Active reviewer at *NeurIPS* (2021-22), *ICLR* (2022-23), *ICML* (2022), *IEEE TNNLS*.

**SKILLS**

**Research** Deep Learning, Computer Vision, Medical Imaging, Graph Neural Networks

**Programming** Python (TensorFlow, PyTorch), Rust, C++, Git, Docker

**WORK EXPERIENCE**

**Senior Data Scientist – Deep Learning | *GE Healthcare*** San Ramon, CA. Aug 2021 – Jul 2022

Research and development of deep learning solutions in medical imaging. Language: Python (FastEstimator, TensorFlow, PyTorch).

* X-ray quality assurance toolkit for imaging auto-correction. New product introduced
* Anatomic landmark detection in X-ray images for quantification. Patent application filed
* External object classification in X-ray images. Patent application filed

**Research Software Engineer | *Matician Inc*** Palo Alto, CA. Jan 2021 – Jun 2021

Developing SLAM from scratch, aiming at 30 times faster than ORB-SLAM using only visual input. Language: Rust, C++.

Supervisor: Dr. Navneet Dalal, first author of Histogram of Oriented Gradients HoG.

* Re-localization and Loop Closure
* Designed and implemented algorithms for “finding where I am after getting lost” and “updating the map after detecting a loop”.
* Involves Location Detection, Loop Detection, Geometric & Temporal Checks, Pose-Graph Optimization, etc.

**Research Assistant | *Columbia University***  New York, NY. Dec 2019 – Nov 2020

Led or participated in projects while mentoring master student research. Return-offer after working in the lab. Language: Python (PyTorch).

* Synthesize contrast enhancement from common but harmful contrast agents in MRI
* Phase 1. Image synthesis with U-Net variants (Image-to-Image Translation) *IEEE ISBI*’20, *ISMRM*’20×2 (Oral Power Pitch×2)
* Phase 2. Comprehensive clinical validations (Large-scale statistical analysis) *Frontiers in Aging Neuroscience*’22

Replicated clinical findings published in *Nat. Neurosci*’14, *Nat. Neurosci*’13, etc., using the simulated contrast on large-scale datasets.

* Phase 3. Extension to other studies (Classification and Segmentation). *IEEE ISBI*’21, *ISMRM’21*×2 (Oral Presentation×1)
* Open-Access Software (in MATLAB) for Magnetic Resonance Spectroscopy Processing
* Phase 1. Design and development. *ISMRM*’21 (Oral Presentation)
* Phase 2. Empower scientific research (collaborators from many institutions). *Epilepsia*’21, *Frontiers in Behavioral Neuroscience*’21
* Dense Cell Segmentation *IEEE EMBC*’22

**INDEPENDENT PROJECTS**

* Research on adapting the concept of focal loss to keypoint detection tasks. *ArXiv*
* Factor analysis on carbon emission data.*Energies*’20

**OTHER EXPERIENCE**

Teaching fellow for *Deep Learning on Graph-Structured Data* instructed by Dr. Rex Ying. Yale University, 2022

Course designer and mentor for *Deep Learning in Biomedical Applications*. Columbia University, 2020