James L. Wang

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Education

Columbia University | Columbia Engineering 2018 – 2022

Bachelor of Science – Computer Science Major and Applied Mathematics Minor

- **Relevant Coursework:** Data Structures in Java, Advanced Programming in C/C++, Introduction to Databases, Machine Learning, Computational Math: Numerical Methods, Differential Equations, Statistics & Probability
- **Egleston Scholar:** Recognized as top 1% of Columbia Engineering applicants
- **Organizations and Activities:** Application Development Initiative, Columbia Organization of Rising Entrepreneurs, Engineering Student Council, Global China Connection

Professional Experience

Memorial Sloan Kettering Cancer Center, Dana Pe'er Lab | Research Intern Jan. 2019 – Present

- Developing perception-based self-supervised models for latent space representation of single-cell spatially resolved multiplexed images to understand cancer cell gene expression
- Built and distributed end-to-end machine learning pipeline for cell segmentation and classification using Mask R-CNN model to partner institutions
- Developed scalable and robust seamless image stitching algorithm for cell imaging machine learning pipelines
- Implemented and refined CycleGAN model for content-aware image style transfer between mass spectra and fluorescence cell imaging for downstream analysis

U.S. Securities and Exchange Commission | Quantitative Analyst Intern Aug. 2019 – Nov. 2019

- Analyzed high-frequency trade blotter data to develop Python-based automated machine learning based pattern recognition tool for market manipulation and other illegal trading activity
- Presented findings to compliance officials and fine-tuned model for edge-cases and improved program usability

UC Santa Barbara MIRAGE Lab | Research Intern Jun. 2017 – Aug. 2017

- Researched the effects of using perception-based loss functions in convolutional neural networks on image denoising and super-resolution using evaluation metrics in Tensorflow

Projects

SpineAlign | iOS Application Mar. 2019

- Led development of mobile application aims to diagnose degree of scoliosis in iOS devices using real-time gyroscopic data for curve detection and computer vision models for shoulder imaging
- Leveraged OpenCV Swift framework and Sketch for application UI design and layout

Chest X-Ray Nodule Classification for Early Lung Cancer Detection | Machine Learning 2017 - 2018

- Developed refined VGG-16 based convolutional neural network for benign and malignant nodule classification using transfer learning techniques, significantly improving published dataset accuracy metrics
- Developed optimized task-specific exhaustive-search algorithm for multiple object detection in model

Leadership & Campus Involvement

Columbia Organization of Rising Entrepreneurs | Sr. Operating Committee Leader. Feb. 2019 - Present

- Global Tech Treks Program Leader: Led and coordinated week-long delegation of 15 entrepreneurially minded students to Seattle, Shanghai, and Berlin to visit startups, accelerators, and venture capital firms
- Organized diverse assortment of weekly Friday Founder series speakers to connect students with New York City based startups and investors

Skills and Awards

Languages: Python, Java, C, C++, SQL/PostgreSQL, HTML/CSS, Javascript, LaTeX
Frameworks/Tools: Tensorflow/Keras, Pytorch, Scikit-Learn, Git, AWS, Google Cloud
Awards/Honors: Columbia University COVID-19 Design Challenge Finalist (2020), Columbia University DevFest Hackathon First Place (2019), USA Computing Olympiad Gold Division (2018), Regeneron Science Talent Search Semifinalist (2018), Siemens Competition for Science Math Technology Semifinalist (2017)