

Kevin Karnani

MACHINE LEARNING RESEARCHER

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Education

Johns Hopkins University

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE

Cumulative GPA: 0.00

Baltimore, MD

Aug 2022 — Current

Drexel University

BACHELOR OF SCIENCE IN COMPUTER SCIENCE & MINOR IN MATHEMATICS

Cumulative GPA: 3.94 (Summa Cum Laude)

Philadelphia, PA

Sep 2018 — Jun 2022

Publications

Computational Metadata Generation Methods for Biological Specimen Image Collections (Preprint)

K. KARNANI, J. PEPPER, D. BREEN, ET AL. *International Journal on Digital Libraries*, Research Square, Apr. 2022

Experience

Johns Hopkins University Applied Physics Lab

MACHINE LEARNING RESEARCHER (SECRET)

Laurel, MD

Apr 2022 — Current

- Conducting literature reviews in object detection architectures for drone imaging datasets to increase model metrics
- Utilizing confidence learning with object detection models to mitigate annotation errors and increase model metrics
- Converting various pre-existing models and scripts from TensorFlow to PyTorch to leverage built-in optimizations
- Reviewing ongoing research on complex-valued CNNs to better utilize complex properties for SAR generated images

Drexel University

COMPUTER VISION RESEARCH ASSISTANT

Philadelphia, PA

Jun 2021 — Apr 2022

- Generalized metadata extraction from subsets of 5 biological specimen image repositories storing 500,000+ images
- Refined the length calculation of specimen detected by detectron2 with a 20% faster vectorized implementation
- Parallelized code and increasing concurrency by separating code into functions, yielding an 87.5% optimized runtime
- Implemented 16 new metadata properties and 4 error reduction approaches, yielding a 74% error rate decrease

Clarivate Analytics

JUNIOR SOFTWARE ENGINEER

Philadelphia, PA

Sep 2020 — Mar 2021

- Ported the next generation of a data citation index (Web of Science) that generates \$249 million in revenue
- Migrated 4 core components of the Web of Science legacy app to the new application in an Agile environment
- Updated and created 6 features of the new Web of Science using Angular11, RxJS/RxJava, and Java microservices
- Adhered to standard CI/CD practices by writing 500+ unit/e2e test and 100+ PR reviews to obtain 93% Sonar coverage

Projects

Digital Pathology

LEAD DEVELOPER & PROJECT MANAGER

Drexel University

Sep 2021 — Jun 2022

- Remodeled an project using digitized nasal slides to improve classification accuracy of chronic sinusitis severity to 71%
- Determined the potential severity chronic sinusitis given high density eosinophil regions using Machine Learning
- Transitioned from single-CPU to multi-GPU usage to reduce computational complexity of image segmentation by 95%
- Containerized the project onto AWS SageMaker and S3 to automate hyperparameter tuning and increase runtime speed

Skills

Programming Python, Java, MATLAB/Octave, C, C#, Bash, Angular8+, HTML5, CSS, JavaScript, NodeJS, LaTeX
Technologies Git, Jira, TensorFlow, PyTorch, Detectron2, NumPy, Pandas, Sci-Kit Learn, AWS EC2, MongoDB
Languages Spanish, Hindi