Yoga Advaith Veturi

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Skills

Research Areas	Self-supervised learning, Generative AI, Computer Vision, Deep Learning, Machine Learning, Medical Imaging
ML Libraries	**PyTorch**, Keras, OpenCV, NumPy, Pandas, Scikitlearn, MatPlotLib
Languages	Python, SQL, MATLAB
Software	Github, Docker, Amazon Web Services

Education

2025-Present	**Ph.D. in Computational Precision Health,** University of California Berkeley and University of California San Francisco *Advisor: Dr. Rima Arnaout*	
2020-2021	**MSc in Machine Learning**, University College London *Thesis Title: SynthEye - Generating Realistic Retinal Images using Generative Adversarial Networks* *Advisor: Dr. Nikolas Pontikos*	GPA: 3.81
2017-2020	**BSc in Applied Medical Sciences**, University College London *Thesis Title: An Investigation into Automating Cardiac MRI Planning Using Deep Learning* *Advisor: Dr. Rhodri Davies*	GPA: 3.84

Publications and Abstracts

1. **Veturi, Yoga Advaith**, Aaron Beckwith, Ramya Gnanaraj, et al. “Longitudinal Tracking of Geographic Atrophy Progression Using AI-Enabled Segmentation and Registration.” Investigative Ophthalmology & Visual Science 66, no. 8 (2025): 5850–5850.

2. Pontikos, Nikolas, William A Woof, Siying Lin, Biraja Ghoshal, Bernardo S. Mendes, **Advaith Veturi**, et al. “Next-Generation Phenotyping of Inherited Retinal Diseases from Multimodal Imaging with Eye2Gene.” **Nature Machine Intelligence**, Nature Publishing Group UK London, 2025, 1–12.

3. **Veturi, Yoga Advaith**, Steve McNamara, Scott Kinder, et al. “EyeLiner: A Deep Learning Pipeline for Longitudinal Image Registration Using Fundus Landmarks.” Ophthalmology Science 5, no. 2 (2025): 100664.

4. **Veturi, Yoga Advaith**, William Woof, Teddy Lazebnik, et al. “SynthEye: Investigating the Impact of Synthetic Data on Artificial Intelligence-Assisted Gene Diagnosis of Inherited Retinal Disease.” Ophthalmology Science 3, no. 2 (2023): 100258.

5. Beckwith, Aaron D, Stephen M McNamara, **Yoga Advaith Veturi**, et al. “Patient-Level Forecasting of Geographic Atrophy with a Biologically Grounded Gompertz Model.” medRxiv, Cold Spring Harbor Laboratory Press, 2025, 2025–10.

6. Beckwith, Aaron D, **Yoga Advaith Veturi**, Ramya Gnanaraj, et al. “A Bayesian Gompertz Model to Address Non-Linearity in Geographic Atrophy Growth.” Investigative Ophthalmology & Visual Science 66, no. 8 (2025): 3990–3990.

7. Clark, Christopher William, Scott Kinder, **Yoga Advaith Veturi**, et al. “Adopting Uncertainty-Aware Training to Improve Geographic Atrophy Segmentation.” Investigative Ophthalmology & Visual Science 66, no. 8 (2025): 581–581.

8. Kinder, Scott, Steve McNamara, Christopher Clark, Ben Bearce, Upasana Thakuria, **Yoga Advaith Veturi**. “Optic Cup and Disc Segmentation of Fundus Images Using Artificial Intelligence Externally Validated With Optical Coherence Tomography Measurements.” Translational Vision Science & Technology 14, no. 6 (2025): 30–30.

9. Kinder, Scott, Steve McNamara, Christopher Clark, **Yoga Advaith Veturi** et al. “AI-Based Optic Disc and Cup Segmentation Can Provide Consistent Cup-Disc Ratio (CDR) Measurements and Precise Progression Tracking.” Investigative Ophthalmology & Visual Science 65, no. 7 (2024): 6189–6189.

10. Bearce, Benjamin, Steve McNamara, Scott Kinder, **Advaith Veturi** et al. “Disease Progression in Ophthalmic Images via Flicker Overlay.” Investigative Ophthalmology & Visual Science 65, no. 7 (2024): 1649–1649.

11. Clark, Christopher, Scott Kinder, Jayashree Kalpathy-Cramer, Steve McNamara, Benjamin Bearce, Praveer Singh, **Advaith Veturi**. “Towards an Optimal (Self)-Supervised Learning Paradigm for Diabetic Retinopathy Detection.” Investigative Ophthalmology & Visual Science 65, no. 7 (2024): 5658–5658.

12. McNamara, Steve, Benjamin Bearce, Scott Kinder, **Yoga Advaith Veturi** et al. “OPTIMEyes: An Annotation and Inference Feedback Tool for Multimodal Ophthalmic Imaging.” Investigative Ophthalmology & Visual Science 65, no. 7 (2024): 2377–2377.

13. Pontikos, Nikolas, William Woof, **Advaith Veturi**, et al. Eye2Gene: Prediction of Causal Inherited Retinal Disease Gene from Multimodal Imaging Using Deep-Learning. 2022.

Conferences

May 2025	Talk Title: Longitudinal Tracking of Geographic Atrophy Progression using AI-enabled Segmentation and Registration ***Association for Research in Vision and Ophthalmology (ARVO) – Salt Lake City, UT, USA***

October 2024 Talk Title: Automated Segmentation and Registration of Fundus Autofluorescence Imaging facilitates better monitoring of Geographic Atrophy Growth
Longitudinal Disease Tracking and Modelling with Medical Images and Data (LDTM) Workshop –Medical Image Computing and Computer Assisted Interventions Society (MICCAI) – Marrakech, Morocco

October 2024 Talk Title: EyeLiner - Longitudinal Fundus Image Registration through Clinically Guided Keypoint Detection
CLINICCAI at Medical Image Computing and Computer Assisted Interventions Society (MICCAI) – Marrakech, Morocco

May 2024 Poster Title: EyeLiner - Longitudinal Fundus Image Registration through Clinically Guided Keypoint Detection
Association for Research in Vision and Ophthalmology (ARVO) – Seattle, WA, USA

Research Experience

Jan 2023 – May 2025 **Senior Data Scientist, QTIM Lab, University of Colorado, USA**

- Pioneered novel image processing pipelines using computer vision and deep learning, enabling automated analysis longitudinal ophthalmic images.
- Leveraged transformers and convolution networks for various tasks: **image registration, segmentation, classification, object detection**.
- Optimizing our large ophthalmology EHR database using SQL techniques to correct systemic issues, enhancing operational efficiency of our lab.
- Contributed to NIH R01 and R21 grants.
- Published and presented research at top medical and ML venues (MICCAI, ARVO).

Sept 2021 – Dec 2022 **Honorary Researcher, Pontikos Lab, University College London**

- Researched generative AI methods for retinal image analysis.
- Collaborated with world-leading ophthalmologists at Moorfields Eye Hospital.
- Presented research at UCL Healthcare Engineering Symposium (2021), UCL Institute of Ophthalmology Symposium (2022), and Stanford AI+Health Conference (2022)

Sept 2019 – June 2020 **Student Research, St. Bartholomew's Hospital, UK**

- Investigated supervised deep learning models (convolutional neural networks) for cardiac image analysis.
- Implemented segmentation algorithms (UNets) from scratch using Keras.
- Studied cardiac imaging fundamentals with the help of clinicians at Barts Cardiac Centre.

Professional Experience

Oct 2022 – Dec 2022 **Phenopolis - Software Engineering Internship**

- Deployed deep learning models on Amazon Web Services using AWS Lambda and Serverless Framework.
- Contributed to the development of Eye2Gene web app which inputs fundus autofluorescence, OCT and infrared imaging and outputs automated disease diagnosis – this app was recently integrated into the Heidelberg Spectralis imaging device diagnostic platform.
- Learning software Development best practices – unit-testing, documentation, version-control, agile development.

Aug 2019 – Sep 2019 **Perfios Software Solutions - Data Science Internship**

- Project: Automation of medical insurance claims processing.
- Exploring computer vision tools for processing handwritten medical bills and parsing content using OCR methods.
- Explored basic NLP methods for processing the medical bills data.
- Learned about health insurance claims processing model in India.
- Contributed medical domain expertise for analysis of hospital data.

Awards

Physiological Society Award – Best Overall Student at University College London

- Nominated by Prof. Nephtali Marina-Gonzalez among all students in UCL Division of Medicine

Second Prize - UCL COVID-19 Innovation Challenge

- Lead the team "Traverse" in a mock Dragon's Den competition.
- Proposed an RFID-based tracking system with graph-AI for identifying transmission hotspots in hospitals.
- Featured on UCL website.

Extracurricular Activities

Professional-level Indian Classical Musician

- Awarded B-high grade by the All India Radio.
- Awarded Centre for Cultural Resources and Training (CCRT, Government of India) Scholarship.
- Professionally performed in USA, UK, India, UAE, Malaysia, and Singapore.

References

Prof. Jayashree Kalpathy-Cramer
Chief, Division of Artificial Medical Intelligence
University of Colorado Anschutz Medical Campus
Email: ***jayashree.kalpathy-cramer@cuanschutz.edu***

Prof. Nikolas Pontikos
Principal Investigator, Pontikos Lab
University College London Institute of Ophthalmology
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