AKHIL GOEL

https://github.com/agaction
(571) 353-9527 ⋄ akhil.goel@gatech.edu

EDUCATION

Georgia Institute of Technology, Atlanta, GA *Aug 2018 - May 2022 (Expected)*
Bachelors of Science in Mathematics & Computer Science GPA: 3.84/4.0

Thomas Jefferson HS for Science & Technology *July 2014 - June 2018*

WORK EXPERIENCE

Facebook AI Applied Research May 2021 - August 2021
Softare Engineering Intern *Menlo Park, CA*

- Implemented model interpretability algorithms for Captum, an open-source PyTorch package.
- Designed and developed a library for influential instance methods for machine learning models.
- Created tutorials and applied algorithms to Facebook AI Multimodal models for platform integrity.

Varian Medical Systems May 2020 - August 2020
Softare Engineering Intern *Atlanta, GA*

- Built automized data preprocessing pipeline for developing local deep learning segmentation models,
- Developed deep volumetric models for organ segmentation within Varian's oncology PACS: Velocity.
- Presented project & pitched call-to-action to panel of Varian executives, received a top score.

MIT Lincoln Laboratory June 2019 - August 2020
Summer Research Intern & Student Technical Researcher *Lexington, MA*

- Used Monte-Carlo simulations to develop a time-gating algorithm for a novel imaging technique.
- Poster presentation at SPIE Photonics West, San Francisco, February 2020. "Towards Automatic Time-Gating for Time-Domain Diffuse Correlation Spectroscopy." Paper available at bit.ly/AGpaper1.
- Implemented convolutional neural network architectures for nuclei segmentation and quantification of neurodegenerative disease biomarkers.
- 1st Place Team and Best Poster in Intern Innovative Idea Challenge for proposal on automatic American Sign Language translation. Received funding for continued project development.

GoVivace Inc. July 2018 - Aug 2018
Research Intern *McLean, VA*

- Researched on using deep learning to enhance speech recognition accuracy.
- Leveraged Kaldi toolkit to work on developing improved signal-to-noise ratio estimates, allowing for a better balance between the acoustic model and language model.

George Mason University July 2017 - Aug 2017
Intern - Aspiring Scientists Summer Internship Program *Fairfax, VA*

- Researched under Dr. Giorgio Ascoli on dendritic arborization by creating 3D reconstructions of neurons.
- Presented results to peers, work will be added to the NeuroMorpho database.

eKare Inc. July 2016 - Aug 2016
Intern *Fairfax, VA*

- Worked on a product for noninvasive wound measurement with novel iPad-based 3D imaging technology.

PROJECTS

3D Texture Generation at Georgia Tech Hays Lab *August 2020 - Current*

Research on using Generative Adversarial Nets and Neural Rendering to produce textured 3D images.

American Sign Language Translation at MIT Lincoln Laboratory *June 2019 - January 2020*

Developed project proposal for automatic American Sign Language translation through deep learning with a team of six other interns. Continued research development is funded by MIT Lincoln Laboratory

Autonomous Robot Navigation at Georgia Tech IVALab *Jan 2019 - May 2020*

Applying reinforcement learning algorithms to improve traditional local planning methods in robotics.

Coin Detection with OpenCV *Nov 2017 - Feb 2018*

Self-wrote fundamental computer vision algorithms such as Gaussian blur, Canny Edge Detection, and Hough transform. Utilized OpenCV Library to identify different coins in a picture.

Research on the Neuroscience of Long-Term Memory *Sep 2017 - June 2018*

Applied electrophysiology, self-written data analysis algorithms, and other interdisciplinary lab techniques to study the effect of a drug (zeta inhibitory peptide) on the learning of *Aplysia* (sea slugs).

TECHNICAL SKILLS

Programming Languages	Python, C/C++, Java, Bash, Matlab
Software & Tools	Git, Numpy, PyTorch, TensorFlow, LaTeX, Mathematica
Concepts & Coursework	Data Structures, Algorithms, AI, Computer Vision, Machine Learning, Deep Learning, Object-Oriented Programming, Prob/Stat Theory, Applied Combinatorics, Vector Calculus, Advanced Linear Algebra

LEADERSHIP & EXTRACURRICULAR

Treasurer for "The Agency," the AI/ML club at Georgia Tech. Lead weekly beginner workshop series on theory and application of neural networks, preparing lectures, planning events.

Teaching free chess lessons to roughly 20 elementary school kids at local library in summer 2017.

Camp Invention Leadership Intern in summer 2016, learned leadership skills and worked with kids to promote effective teamwork.

Volunteered at my Elementary School Chess Club in 2013-2014. Acted as the assistant of the instructor and helped manage more than a hundred students, chess sets, and logistics.

AWARDS & ACHIEVEMENTS

Qualifier for the 2018 and 2015 American Invitational Mathematics Examination (AIME)

Semifinalist (Top 500) for the 2017 and 2016 USA Biology Olympiad (USABO)

First place school team in 2018 National High School Chess Championships. First team in 2015-2018 VA State Championships.

National German Exam Gold Award (2017), Silver Award (2016, 2015)