

# AKHIL GOEL

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## EDUCATION

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**Georgia Institute of Technology, Atlanta, GA**  
Bachelors of Science in Mathematics & Computer Science

*Aug 2018 - May 2022 (Expected)*  
GPA: 3.86/4.0

**Thomas Jefferson HS for Science & Technology**

*July 2014 - June 2018*

## WORK EXPERIENCE

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**MIT Lincoln Laboratory**

June 2019 - Current

*Summer Research Intern & Student Technical Researcher*

*Lexington, MA*

- Used Monte-Carlo simulations to develop a dynamic time-gating algorithm for a biomedical imaging technique called Time-Domain Diffuse Correlation Spectroscopy.
- Upcoming poster presentation at SPIE Photonics West, San Francisco, February 2020.
- Implemented convolutional neural network architectures for nuclei segmentation and quantification of neurodegenerative disease biomarkers.
- 1<sup>st</sup> Place Team and Best Poster in Intern Innovative Idea Challenge for proposal on automatic American Sign Language translation. Receiving funding for continued project development, pursuing patent.

**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

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**American Sign Language Translation at MIT Lincoln Laboratory**

*June 2019 - Present*

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 - Present*

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

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<b>Computer Languages</b>	Java, Python, C++, Matlab, Bash, Perl
<b>Software &amp; Tools</b>	Git, PyTorch, TensorFlow, OpenCV, LaTeX, Mathematica, ROS
<b>Industry Knowledge</b>	Object-Oriented Programming, Data Structures, Algorithms, AI, Computer Vision, Machine Learning, Software Design, UML

## LEADERSHIP & EXTRACURRICULAR

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**Treasurer for “The Agency,”** the AI/ML club at Georgia Tech. Worked on a project on using reinforcement learning to teach a robot to walk in a simulated environment.

**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

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**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)