Nicholas Stoltzfus

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Education

Georgia Institute of Technology: *(Atlanta, GA)*   *Aug 2014 – May 2022*
- Bachelors of Science in Computer Engineering *(Completed 2018)*
- Masters of Science in Computer Engineering *(Completed 2022)*

Beijing University: *(Beijing, China)*   *May 2015 – Jul 2016*
- 对外汉语学院－Department of Chinese as a Second Language

Technical Experience

Crimson Vista: Cybersecurity Engineer *(Online)*   *June 2022 - Present*
- Retained for cybersecurity, machine learning, and patent legal cases.

Guaranteed Rate: Software Engineer *(Online)*   *Aug 2021– April 2022*
- Managed employee data in an AWS architecture environment using S3, Simple Queue System to manage Dead Letter Requests, for over 17,000 employees on a team of 6 software engineers.
- Built automated logging for all consumers of employee data on Appsync via Custom Resolvers to track errors during version releases.

CyFI Lab – Cyber Forensics Information Technology: GRA *(Atlanta, Georgia)*   *Aug 2018 – Dec 2019*
- Investigated the correlation of lasting digital fingerprints of a reinforcement learning network which had trained on trace adversarial attacks vs networks that had only encountered pure benign training samples.
- Applied CRIU and GDB to create loadable memory snapshots of running reinforcement networks to simulate a failed system's memory recovery.
- Results indicated that the rate a network overfits to data increases with each adversarial sample encountered while training a reinforcement network, this overfitting is detectable via cross analyzing the current network layer values of a given vehicle against its other deployed networks.

Viasat Inc.: Intern *(Duluth, Georgia)*   *May 2017 – Aug 2017*
- Worked on a team of 4 interns (2 remote, 2 in office) to produce a proof of concept for sea based satellite internet access. Ships could be tracked via OpenStreetMaps (simulated GPS signal).
- Worked with a number of modern programming techniques including Jenkins and several message queue APIs.
- System was fully implemented on a network of raspberry pis, where each pi represented a single ship at sea.

Georgia Tech Research Institute - Dekalb County Police: App Developer *(Atlanta, Georgia)*   *Jan 2017 – May 2017*
- Developed front end for Android application which allows victims of crime to submit crime related evidence via picture, texts, videos, or sound files without relinquishing their phone to police for manual investigation, both ensuring that victims of crime maintain their privacy and the uninterrupted use of their phones.

GVU Center at Georgia Tech: Undergraduate Research Developer *(Atlanta, Georgia)*   *Aug 2016 – Dec 2017*
- Applied user collaboration as a viable tool for generating increasingly robust gesture recognizers to facilitate mapping gestures to actions on smart devices (phone, watch and glass).
- Developed a viable Android application frontend that collected sensor data then implemented RESTful API requests to communicate with backend server and machine learning model.
- Maintained an online server through which users collaborated and communicated to define gestures.

Autonomous Rover Region Mapping: Altera FPGA-Driven Robot Developer *(Atlanta, Georgia)*   *Aug 2016 – Dec 2016*
- Implemented a mobile rover to accurately map an unknown region using ultrasonic rangefinders and occupancy grid mapping, a process which changes cell values based on scans from rangefinders to determine if an area contains an obstacle.
- Configured a simple computer in VHDL on an FPGA. Defined assembly language instruction to be transferred via UART. Worked on a team of 4 to test different approaches.

Georgia Tech Research Institute - New Georgia Encyclopedia: App Developer *(Atlanta, Georgia)*   *Aug 2016 – Dec 2016*
- Developed an interactive Android application to match notable sites with their map locations, descriptions, pictures, and histories.
- App map synced with OpenStreetMaps and allowed for touring through Georgia's most historic zones while reading about the state's history.

Skills

Programming:		**Hardware:**	
Experienced:	Python, C++, Java, Spring	Proficient:	Assembly, VHDL, mbed/Arduino microcontrollers,
Proficient:	C, JavaScript, HTML5, CSS3		Altera/Xilinx FPGA digital circuit prototyping

Teaching Experience

Tech Talent South: Programming Instructor *(Online)*   *Aug 2020 – March 2021*
- Managed and taught two Online Java Development Courses for 2 classes over 6 months: the larger class included 167 students and 5 TAs, the smaller included 35 students and 3 TAs.
- Includes material such as Core Java, Data Structures and Algorithms, Spring MVC, MySQL, Object Oriented Programming, and modern programming techniques such as version control, CI/CD, and dynamic debugging.

Digital Design Laboratory: GTA *(Atlanta, Georgia)*   *Jan 2020 – May 2020*
- Assisted and guided more than 50 collegiate students with completion of hands-on circuit design, circuit implementation, and assembly programming.
- Managed grading assignments and corrected handed-in documents, essays, and presentations for the above students.

Peer International Education: Class Teacher *(Beijing, China)*   *Aug 2015 – May 2016*
- Taught English grammar, essay writing, reading skills, and critical analysis to children ages ranging from 7 to 15 with a large diversity of speaking levels.
- Classes ranged from 5 to 7 students and reading material included famous publications such as "The Lion, the Witch, and the Wardrobe", "The Seventh Tower", and "Animal Farm".

Georgia Institute of Technology: Personal Tutor *(Atlanta, Georgia)*   *Jan 2015 – May 2015*
- Explained high level English techniques including phraseology and sentence structure to foreign graduate students
- Edited graduate student publications.

Projects

Machine Learning Development
- Produced a speech emotion recognition (SER) engine that achieved >90% classification accuracy on the RAVDESS dataset (CNN model). Results indicated that specific emotions, such as sadness in speech, were expressed differently between men and women, identifiable via classification confusion matrix.

Android Development
- Developed a turn based strategy game, Predictionz, as an Android application with a greedy AI. Includes multiple unit types, a fast paced gameplay with various win conditions, PvP interaction.

Python Development
- Developed a Python based document search algorithm that computes the cosine distance between dictionary vectors of words to link a query to a document list, employs clustering for increased speed when querying for similar documents.

Achievements

Undergraduate Living Center Hall Council Member: Events Coordinator   *2014*
- Ran competitions, tournaments, and community activities for approximately 450 students.

Boy Scouts of America: Eagle Scout   *2012*
- Organized community members, finances and resources to remove steep elevation and construct a safe path for elderly faculty members. Rebuilt access to an unused storage shed and connected multiple parking lots.