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**EDUCATION**

**Duke University** **May 2025 (expected)**  
*B.S. in Electrical and Computer Engineering and Computer Science | Innovation & Entrepreneurship certificate* Durham, NC

• **GPA:** 3.78/4.00

• **Programs:** XPRIZE rainforest robotics team, Duke Robotics Mentorship, Aeroelasticity Research, Duke Quantitative analysis

• **Relevant Coursework:** Machine Learning, Linear Algebra, Modern Physics, Multi, ODE, Data Structures, Data Engineering

**South Carolina Governor's School for Science and Mathematics (SCGSSM)**

**May 2022**

• **Honors:** SCGSSM Robotics Award, FRC Design Award S.E. region, National Merit Finalist, National AP Scholar

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**WORK EXPERIENCE**

**Stanford Linear Accelerator Center National Lab** | *Machine Learning Researcher* **Jun 2023 – Aug 2023**

- Re-engineered FACET-II's computer simulation infrastructure, implementing algorithmic control to improve efficiency
- Developed a fast machine learning model for the FACET-II photo injector, a speed up of 26,000X vs traditional simulations
- Recognized for exceptional performance and innovation, earning a return offer to continue spearheading machine learning research
- Leveraged a technology stack consisting of XOPT, MATLAB, and OpenPMD. Employed Bayesian optimization and Controlled Non-dominated Sorting Genetic Algorithm for advanced simulation optimizations, while seamlessly executing MATLAB functions through Python for enhanced process automation

**DeAP Learning Labs (deaplearning.com)** | *Founder and CTO* (Durham, NC) **April 2023 – Current**

- Founded and technically directed an AI-driven educational startup that has empowered over 95,000 students with personalized AP history exam preparation, transforming traditional education through scalable, interactive AI.
- Developed custom, scalable RAG based generative AI API on AWS using docker, flask, gunicorn, nginx, GitHub workflows CI/CD

**Duke Aeroelasticity Lab** | *Computational Fluid Dynamics Researcher* (Durham, NC) **May 2022 – Current**

- Conducted grad-level CFD research on transonic airflow over a wing, examining the little-explored area of transonic buffet
- Investigated use of Euler equations as a less computationally intensive alternative to Navier-Stokes equations

**Chapel Headshots** | *Founder and CEO* (Durham, NC) **Aug 2022 – Current**

- Founded Duke's premier professional headshot business | Directed marketing strategies and customer service relations.

**Self-Driving Golf Cart Initiative** | *Design / Mechanical Lead* **Jan 2022 – May 2022**

- Designed and constructed a fully autonomous self-driving golf cart using a modular system that creates an eco-friendly, on demand campus transportation fleet from old golfcarts and offers independence to disabled individuals
- \$35,000 in grants from Google, SC Department of Education, and the GSSM Foundation | praise from Boston Dynamics
- Implemented linear actuators, LiDAR, Nvidia Jetsons, and stereolithographic cameras to enable autonomous drive by wire

**University of South Carolina Advanced Research Computing Lab** | *Deep Learning Researcher* **Jun 2021 – Aug 2021**

- Conducted an analysis of PyTorch / TensorFlow / MxNet deep learning frameworks on ImageNet / CIFAR10 / CIFAR100 datasets
- Revealed accuracy differences between Deep Learning frameworks, revealing a new research field for the USC ARC Lab
- Authored paper for South Carolina Junior Academy of Sciences (3<sup>rd</sup> place) / Presented oral presentation (2<sup>nd</sup> place)

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**LEADERSHIP & EXTRACURRICULAR INVOLVEMENT**

**Duke Robotics Mentorship** | *Duke Club President* **Jan 2023 – Current**

- Headed and grew organization dedicated to delivering free, hands-on robotics and programming courses to four local middle schools, demonstrating exceptional management skills and commitment to educational outreach

**SPARK! (SCGSSM)** | *Voluntary Student Leader* **Sep 2020 – May 2022**

- Planned, managed, and taught interactive, engaging lessons in STEM subjects to over 80 middle schoolers from across SC
- Taught and led lessons in robotics, Chinese, Latin, Math, US history, and spearheaded 8-week python course

**Duke XPRIZE Robotics Team** | *Rainforest Drone Team* **Aug 2022 – Present**

- Designed motor harness for drone and gel-based vibration-dampening system while auditing XPRIZE class (ECE 365)

**SCGSSM Mindfulness Program** | *Founder and President* **Jan 2021 – May 2022**

- Established afterschool mindfulness course in collaboration with school administration and certified yoga instructor

**FIRST Robotics** | *Team Captain (FTC 327) | Lead Driver, Fabrication Specialist (FRC 2815) | Current Mentor* **Jan 2020 – Present**

- Founded a fabrication sub team and re-structured FRC 2815's mechanical workflow, introduced OnShape and maintained a complete CAD model of our competition robot, enabling precise part fabrication and allowing the team to reach the Palmetto regional quarterfinals, placing 14th of 63 teams from ten states | Headed drive team to win SCRAP 2021 regionals

**Cross Country** | *Assistant Coach, Team Captain, Varsity* **Jun 2019 – May 2022**

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**SKILLS AND INTERESTS**

- **Skills/Certifications:** Polish (fluent), Chinese (conversational), MATLAB, Python, Java, ANSYS fluent, Linux, CAD, Jira, Confluence, Git, AWS – EC2, lambda, App Runner, ECR, VPC, AZURE – Hosting, Docker, K8s, WSGI API
- **Interests:** XC running, Cooking, Mountain Biking, rock climbing, Skiing, AI, 3D printing, CNC machining, CAD