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ANNA E. DODSON

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EDUCATION

Dartmouth College *September 2016 – June 2020*

GPA: 3.90/4.0 Major: Computer Science and Engineering Modified with Neuroscience

Catlin Gabel School *September 2012 – June 2016*

GPA: 3.92/4.0 SAT: 2330

RELEVANT COURSES

- Software Design and Implementation
- Problem-Solving via Object Oriented Programming
- Computer Architecture and Engineering
- Design of Digital Systems
- Discrete Mathematics
- Algorithms
- Robotics
- Control Theory
- Computational Neuroscience
- Systems Biology
- Computer Graphics
- Honors Linear Algebra

WORK EXPERIENCE

Software Engineering Intern – Apple Streaming Media *June 2019 - Present*

- Improve the HTTP Live Streaming (HLS) protocol using machine learning models trained on big data and device data.

Presidential Research Scholar – Dartmouth Brain Engineering Lab *June 2018 – Present*

- Utilize novel Riemannian approach to improve upon compression using a perceptual transformation in place of DCT on time-sensitive inputs.
- Compare algorithm effectiveness against H264 with Java-based encoders and decoders; presented results at Wetterhahn Research Symposium.

Software Engineering Intern – Apple FaceTime *March 2018 – June 2018*

- Worked with the Phone/FaceTime team to implement features for Group FaceTime using Xcode, Objective-C, and Swift.
- Designed and implemented relay calling paradigm for Group FaceTime calls on paired devices, including Apple Watch and HomePod.

Engineering Practicum Intern – Google *June 2017 – Sept 2017*

- Using XCode and Objective-C, completed new feature for iOS Maps which allows users to refine complex locations like airports to more specific destinations. The feature was launched worldwide in October 2017.
- Created custom views, designed entry point logic, and ensured smooth integration with multi-waypoint routes across all types of transportation.
- Developed new navigation mode footer to improve accessibility and app continuity.

Software Developer – Digital Arts, Leadership, and Innovation (DALI) Lab *January 2017 – March 2018*

- Collaborated with other software developers and artists to design, prototype, and produce mobile and web applications.
- Created and spearheaded project Surplus, and developed for apps Making it Stick and Initiative for Responsive Government.

Teacher's Assistant and Tutor – Dartmouth College *Sept 2016 - Dec 2017*

- Instructed CS10: Problem-Solving via Object Oriented Programming students in weekly programming exercises and office hours; assessed lab work and exams to enrich students' learning of object-oriented coding principles and Java.
- Tutored students in several computer science courses, providing one-on-one guidance for coding and design strategies.

ACTIVITIES & LEADERSHIP

- **Project Lead - Dartmouth Humanitarian Engineering:** Seek out and design humanitarian solutions to global challenges. Prototyped a fertilization system which delivers a "compost tea" solution for use at urban low-income farms and led team in eco thinktank competition.
- **Member - Dartmouth WiCS:** Advocate for women in computer science community; attend hackathons and conferences for women in STEM.
- **Varsity Athlete – Dartmouth Equestrian:** Compete in IHSA hunt-seat equestrian for the Dartmouth Division 1 Varsity athletic team.
- **Co-President & Control Systems Manager (2012-2016) – FIRST Robotics:** Coordinated Team 1540 members in administrative and electrical endeavors, as well as coordinating humanitarian efforts through Lemelson-MIT InvenTeam projects.

PROJECTS

- **Perceptual Approach to MPEG Compression (2018 - Present)** – Created Java implementation of video compression encoder and decoder based on Riemmanian geometry, improving upon time-sensitive input compression using perceptual geometry. Created research video and presented findings at Wetterhahn Symposium.
- **Compost Tea (2016 – Present) –** Lead efforts in design, prototyping, and testing a sustainable and cost-effective compost tea brewer to improve quality of life for low-income farmers in Quito, Ecuador. Traveled to Ecuador in June 2018 to deliver prototypes. Spearhead research efforts with the Dartmouth Greenhouse, Organic Farm, and Ecuador partners to quantify the impact of our solution on crop production. Led team in the NAE Global Grand Challenge competition, where we were selected as national finalists to represent the US in London in September 2019.
- **Digital Jump (2018) –** Using VHDL, designed hardware and programmed a Basys3 FPGA to take in accelerometer data from a Pmod ACL accelerometer chip and display on a VGA screen a replica of the popular iPhone game DoodleJump.
- **Surplus (2016-2018) –** Led development of a community food-sourcing app using iOS and Swift alongside two other freshman women as part of Dartmouth Women in Science Program. Our app targets schools and homeless communities to connect leftover food with hungry individuals.

AWARDS & RECOGNITIONS

National Collegiate Award Honorable Mention (2019), Finalist (2019, 2018) – NCWIT Collegiate Award
Fellow (2019, 2018, 2017) – Rewriting the Code Fellowship
Presidential Scholar (2018) – Dartmouth Undergraduate Research
All-Academic First Team (2018) – IHSA Equestrian
National Runner-Up (2016), Regional Winner (2016, 15) – NCWIT Aspirations in Computing Award
Engineering Inspiration Award (2016) – FIRST World Championship

SKILLS & LANGUAGES

Java, C, C++, Python, VHDL, Objective-C, Swift, XML, MATLAB, SPSS, R, Machine Shop