

Andrew C. Freeman

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EDUCATION

Doctor of Philosophy, Computer Science, Expected May 2024

University of North Carolina at Chapel Hill, NC

Advisor: Ketan Mayer-Patel

Research focus: multimedia systems, compression, graphics

Bachelor of Science Fellow, Computer Science and Mathematics, May 2019

Samford University, Birmingham, AL

RESEARCH EXPERIENCE

Graduate Research Assistant, August 2019-Present

Department of Computer Science, University of North Carolina at Chapel Hill

- Working with Prof. Ketan Mayer-Patel to develop a real-time compression scheme for asynchronous event camera spike data

Undergraduate Researcher, January 2017-May 2019

Department of Mathematics and Computer Science, Samford University

- Developed an efficient, lossless compression scheme for arbitrary image sequences
- Developed a low-bandwidth, lossless image web protocol with custom adaptive resolution algorithms

Research Intern, August 2018-January 2019

Christenberry Planetarium, Samford University

- Investigated the viability of open-source projection software, engineering usability features and improvements

National Science Foundation REU Research Assistant, May 2017-July 2017

Department of Computer Science and Software Engineering, Auburn University

- Wrote autonomous obstacle avoidance system for Unmanned Aerial Vehicles in Python with OpenCV

TEACHING EXPERIENCE

Graduate Teaching Assistant, August 2019-Present

Department of Computer Science, University of North Carolina at Chapel Hill

- Assisted Profs. Henry Fuchs and Montek Singh with Computer Organization course
- Gave lectures, designed quizzes, homework, and exams, held office hours, and taught recitation sections

Undergraduate Preceptor, January 2018-December 2018

University Fellows Program, Samford University

- Led discussions on literature, provided guidance and assistance to students outside of class, edited papers, organized study sessions, and helped professor plan for class

CONFERENCE PRESENTATIONS

Oral Presentations

- **Freeman, A.,** Toone, B. (2018, November). *Low Bandwidth Image Transfer with Client-Specific Dynamic Processing*. ACM Mid-Southeast Conference, Gatlinburg, TN.
- **Freeman, A.,** Suen, D., Biaz, S. (2017, October). *UAV Collision Avoidance with Stereo Vision on a Low-Power Embedded System*. SoCon Undergraduate Research Forum, Spartanburg, SC

Poster Presentations

- **Freeman, A.,** Suen, D., Biaz, S. (2018, April). *UAV Collision Avoidance with Stereo Vision on a Low-Power Embedded System*. National Conference on Undergraduate Research, Oklahoma City, OK

PROFESSIONAL EXPERIENCE

Data Engineering Contractor, April 2019-August 2019

PRP Logistics, Atlanta, GA

- Built a custom cloud database and ETL solution for improved analytics with MongoDB, Node.js, and Tableau
- Developed custom functionality for data from customers The Home Depot, Target, and Tractor Supply Co.

Software Engineering Intern, May 2018-August 2018

Toyota Connected, Plano, TX

- Built a developer tool for accurately simulating and testing new mobility features for connected vehicles
- Developed a robust Phoenix web API with WebSocket sync and database schema with custom Ecto validations
- Engineered back-end in Elixir, and built system with actor model for concurrent data processing

AWARDS AND HONORS

Samford University Senior Honoree Award, 2018

2nd-Place Undergraduate Research Presentation, ACM Mid-Southeast Conference, 2018

George T. Crocker Memorial Scholarship, 2017

Society of Information Management Scholarship, 2017

Samford University Fellows Scholarship, 2015

National Eagle Scout Association Scholarship, 2015

TECHNICAL SKILLS

C/C++ · Elixir · Java · Erlang · image processing · data compression · Phoenix · Python
native Android · CUDA computer vision · image processing · Node.js · Express.js · JavaScript
Scrum · Agile · SQL HTML · CSS · Linux · OpenCV · Ember.js · C# · advertising integration
data analysis JSONAPI · Amazon AWS · Adobe Creative Cloud Suite

REFERENCES

Ketan Mayer-Patel, Associate Professor and Director of Undergraduate Studies

Department of Computer Science

University of North Carolina at Chapel Hill

919-590-6009, kmp@cs.unc.edu

Henry Fuchs, Federico Gil Distinguished Professor

Department of Computer Science

University of North Carolina at Chapel Hill

919-590-6211, fuchs@cs.unc.edu