

HAYLEY LEBLANC

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EDUCATION

- University of Texas at Austin** 2020-present
Austin, Texas
Ph.D. in Computer Science
- Denison University** 2016-2020
Granville, Ohio
B.S. in Computer Science and B.A. in Mathematics
Final GPA: 3.93 (Summa Cum Laude)

RESEARCH INTERESTS

Operating systems, file and storage systems, crash consistency, storage system verification, persistent memory

CURRENT PROJECTS

- A **persistent memory file system crash consistency checker** to dynamically detect crash consistency bugs in PM file systems like NOVA and ext4 DAX using test cases generated through fuzzing.
- **Bounded formal verification of the jbd2 journal** to find and fix crash consistency bugs in Linux's ext4 file system.

RESEARCH EXPERIENCE

DAAD RISE Internship Summer 2019
Universität Rostock, Rostock, Germany

Assisted supervisor Max Schröder's doctoral research on data management for interdisciplinary research within the CRC 1270 ELAINE research group. Worked on a versioning interface and data visualization tools for CKAN, an open-source data management and sharing platform, tailored to ELAINE's research data needs. Co-authored paper "Inter-Consortia Data Sharing Platforms for Interdisciplinary Collaborative Research Projects" with M. Sc. Max Schröder, Dr.-Ing. Frank Krüger, and Dr.-Ing Sascha Spors.

Anderson Summer Research Program Summer 2018
Denison University, Granville, Ohio

Developed algorithms to generate data about the structure of aperiodic tilings with advisor Dr. May Mei. Co-wrote paper entitled "Algorithmic investigation of substitution tilings and their associated graph Laplacians" with research group. Presented results at the Ohio College Summer Research Symposium.

Gesture Recognition Independent Study 2015-2016
Sunset High School, Portland, Oregon

Developed a method for recognizing American Sign Language (ASL) gestures based on EMG data collected by sensors with advisor Jason Galbraith. Wrote paper entitled "Sign Language Gesture Recognition using Hidden Markov Models."

PUBLICATIONS

Max Schröder, **Hayley LeBlanc**, Frank Krüger, Sascha Spors. “Intra-consortia data sharing platforms for interdisciplinary collaborative research projects.” *it - Information Technology*, 2020.

WORK EXPERIENCE

Teaching Assistant 2017-2020

Denison University, Granville, Ohio

- Held tutoring hours to help students with assignments
- Graded assignments submitted by students
- Classes: CS111 (Introduction to Computer Science), CS181 (Data Systems), CS281 (Introduction to Computer Systems)

SICDrone Software Engineering Intern Summer 2017

Portland, Oregon

- Developed flight control firmware and worked on embedded systems for drones in C and C++
- Modified the PX4 drone autopilot codebase for new drone designs

TALKS

Algorithmic investigation of substitution tilings and their associated graph Laplacians July 27, 2018

Ohio College Summer Research Symposium, Ohio Wesleyan University

Finding file system crash-consistency bugs through fuzzing and verification November 16, 2020

University of Texas Systems Research Consortium Symposium, The University of Texas at Austin

HONORS AND AWARDS

University of Texas at Austin Dean’s Strategic Fellowship	2020
Denison University John L. Gilpatrick Award	2020
Denison University Alice Hutchinson Lytle Award	2020
Denison University Provost’s Academic Excellence Award	2020
Phi Beta Kappa Honor Society	2020
Denison University Math and Computer Science Department Fellow	2019
Denison University Daniel Donald Bonar Math and Computer Science Award	2019
Goldwater Scholarship	2019
Pi Mu Epsilon National Honor Society	2019
Denison University Chosaburo Kato Memorial Award	2018
Denison University Forbes B. Wiley Award	2018
Upsilon Pi Epsilon International Honor Society	2018
Denison University Anderson Scholarship for Excellence in Science	2018
Denison University Phi Society	2017
Denison University Forbes B. Wiley Award	2017
Intel Andy Grove Scholarship	2017
National Merit Scholarship Program Letter of Commendation	2016
NCWIT Certificate of Distinction	2016
NCWIT Affiliate Award for Aspirations in Computing	2015

SKILLS

Languages	C, C++, Python
Computer Systems	Linux, operating systems, file systems, networks
Mathematics	R, Mathematica, Matlab

PAST PROJECTS

Peer-to-Peer File Sharing Service

- Fault-tolerant peer-to-peer file sharing service written in C++
- Designed and implemented an application-level protocol to handle file requests and transmission
- Used asynchronous client and server threads to allow concurrent sending and receiving on the same machine

xv6 File System Checker

- File system checker that identifies inconsistencies due to crash consistency bugs in an xv6 file system image
- Employed extensive unit tests to ensure correctness and exhaustiveness