Ilan Buzzetti

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I BRING experience formally verifying behavioral correctness and timing properties of source-free binary code, a playful adversarial mindset keen on finding edge cases and unspoken assumptions, a desire to make correct, maintainable, understandable systems and reduce the need for human labor.

I AM LOOKING FOR an understanding of the reliability and correctness guarantees needed in industry and the methods used to develop and verify them. To this end I am looking for breadth in the industrial application of testing, formal methods, and binary exploitation. To the end of pushing the state of the art in providing these guarantees I am looking for depth in Type Theory (esp. dependent types), its adjacent fields (e.g. Homotopy Theory), and collaborative/automated proof generation.

EXPERIENCE

SOFTWARE LANGUAGES SECURITY LAB | RESEARCH ASSISTANT
2023 – Present | Richardson, TX
- Proved functional correctness and timing properties of binary code in Coq.
- Automated prevalent cases of bit arithmetic and memory-safety proofs.
- Revived vulnerability detection and binary code translation projects.
- Surveyed NVD for vulnerability patterns to lifts into graph query templates.
- Created novel end-of-semester project options for the lab's graduate course.

GOOGLE | AUDIENCE MODELING - SOFTWARE ENGINEER III
2019 - 2022 | Mountain View, CA
- Increased coverage and equitable distribution of audience memberships.
- Decreased end-to-end training-inference-serving latency with a language based configuration solution.
- Led and organized team-wide code clean up efforts.
- Developed machine learning pipeline changes; ran experiments on live traffic.
- Analyzed experiment data using a variety of SQL and Python workflows.

SPIRE-EIT REU | RESEARCH ASSISTANT
2018 | Ames, IA
- Organized a team of 3, breaking up the project into actionable tasks and delegating the work based on team competencies.
- Conducted a thorough literature review of action recognition.
- Designed and implemented CNN architectures for action recognition.
- Technologies used: Python, Keras, Tensorflow, OpenCV.

PHD CANDIDATE

COMP. SCI. - UT DALLAS
Cum. GPA: 4.0 / 4.0
NSF CSGrad4US Fellowship
Eugene McDermott Grad. Fellow
Phi Kappa Phi Honor Society

LANGUAGES

English • Hebrew • Spanish • Chinese
Coq / Gallina / Ltac • OCaml • ARM
SLEIGH • PIL • Ghidra pcode • Python
Prolog • Bash • C / C++ • Java • SQL
HTML • CSS • Javascript

TECHNOLOGY

Git • Docker • Linux • Semantic Web
Ghidra • Machine Learning • Automation

CTFS

Bandit (34) • Leviathan (2) • Natas (3)

LINKS

Homepage:// **ilanb.xyz**
Github:// **ErrWare**

CURRICULUM VITAE PARVUM

- **LP Lecturer** (2025) - developed a curriculum and taught a course to engage undergraduates in logic programming.
- **Hoare Logic Talks** (2024) - gave Hoare Logic and its Application lectures to the UTD Comp. Security Group and DHA.
- **Networks Projects** (2024) - developed a chatroom client/server app and a RDT protocol wrapper for UDP in OCaml.
- **Prolog Guest Lecturer** (2024) - taught introductory prolog to the Adv. Programming Languages class, 2 lectures.
- **Wedding Planning+Catering** (2024) - planned and catered my wife's wedding.
- **Concurrent Algs Project** (2024) - designed and implemented concurrency safe stack, linked-list, and queue data structures.
- **Verified Regex Parser** (2023) - created and proved the correctness of a regular expression parser in Coq.
- **OSRS Graph Database** (2018) - Scraped OSRS wiki into structured Json LD graph database with a designed ontology.
- **Database Projects** (2018) - developed 1) a library database in Java, JavaFX, PostgreSQL, 2) a database from scratch.
- **Instrument Driver Dev** (2016) - developed LabVIEW instrument APIs for National Instruments.
- **Math Lab Tutor** (2016-2017) - clarified linear algebra, calculus, abstract algebra, and physics concepts.
- **Robotics Team Programming Lead** (2010-2014) - developed control systems for FIRST robots in LabVIEW and mentored the younger generation.

Be kind to yourself.