PATRICK BIEL

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EDUCATION

University of Toronto *September 2019 - Present*
Bachelor of Applied Science in Computer Engineering Cumulative GPA: 3.46/4.0

PROFESSIONAL EXPERIENCE

Software Engineering Intern Toronto, Canada
AMD *May 2022-Present*

- Developed power management features for GPUs
- Debugged physical issues in the sleep and wake up sequences using Kernel Mode Debugging (Windbg)
- Implemented fixes in the Firmware and the Kernel-side Driver using C/C++ and Git
- Implemented a unit test framework with different ASICs
- Maintained a Jenkins testing suite, using Python to automate many tasks
- Resolved 30+ issues in JIRA, keeping track of progress with SCRUM
- Collaborated across teams to close issues

Research Assistant Toronto, Canada
Middleware Systems Research Group - University of Toronto *May 2021-September 2021*

- Source code available at Cairo Verifier. Has $\sim$ 30 stars on Github
- Implemented a cryptographic zero-knowledge proof system in Rust
- Coauthored the paper "Zero-Knowledge Proof System in Open Libra" with Prof. Jacobsen and Shiquan Zhang
- Received $6000 NSERC grant
- Developed proper documentation and testing for a large code-base ($\sim$10k lines)

ENGINEERING PROJECTS

Mood Lights—2021 MakeUofT Hackathon and Audio Visualizer
Available at: DEVPOST Mood Lights Project and Pi Audio Visualizer

- Displays LEDs patterns depending on the weather and voice commands
- Won the $250 "Smartest Unsmart Hack" (Uses no Machine Learning) Award
- Maps the frequencies for a song onto an LED strip using Python

Image Recolourizer
Available at: Training Pipeline and Demo

- Designed a machine learning algorithm that re-colourizes a greyscale image with a team of 4
- Trained, tuned the hyperparameters, and collected data for a CNN encoder-decoder network
- Improved the QoR by more than 100% from the baseline

DESIGN TEAMS

Autonomous Rover Team Toronto, Canada
University of Toronto Robotics Association *September 2020-January 2021*

- Trained a lightweight Image Detection model for traffic sign localization
- Created training data using simulations in Unity

SUMO Toronto, Canada
University of Toronto Robotics Association *September 2019-April 2020*

- Led a team of 3 people to design a robot that competes in sumo wrestling
- Programmed the Arduino and soldered the board, sensors together