

# BANIN ABRAR

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## SUMMARY

- Experienced with C, C++, Python, Perl, JavaScript; Git, SVN and working knowledge of AWS
- Interested in backend development, algorithm optimization, systems design

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## EXPERIENCE

### Integrated Device Technology

Waterloo, ON

Algorithm Engineer (Performance)

Jan – Apr '18

- Improved H.265 encoder's load distribution across multiple CPU cores
- Increased pixel metadata retrieval rate by 400% over GCC's default auto-vectorization
- Optimized pipeline designs in FPGA using Verilog. Reduced total negative slack by 30%
- Analyzed potential benefits of using 512-bit instruction sets in IDT's x86 mainframe
- Wrote automation scripts to improve SSH compatibility in the company's internal workflow
- Completed tasks and projects using Agile Development, through SCM tools, i.e. JIRA

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## PROJECTS

### Smart-Cane

[git.io/f4d9G](https://github.com/f4d9G)

- Team lead in **embedded systems** project, for designing a smart walking-aid
- Implemented an automated, proximity-based warning system using ultrasonic signal probing
- Generated cross-compiled MIPS instructions for Omega2 chip, through GNU Toolchain

### Gitook

[git.io/f4d9Y](https://github.com/f4d9Y)

- Designed a git-repository commit handler interface in Perl
- Utilized **Git Templating** to detect and filter undesired changes during commit
- Automated background checks on local repository through git pre-commit hooks

### UltraInstinct

[git.io/f4dhQ](https://github.com/f4dhQ)

- Designed an API-based Twitter user analysis program in Flask
- Implemented automated text mining through Twitter's tweet extraction API
- Utilized IBM's Natural Language Processing API to perform tweet sentiment analysis
- Developed algorithm to generate an overall score for a user from individual sentiment scores

### FSearch

*In-Progress*

- Created a speed-efficient extended fuzzy search program
- Implemented Peter Norvig's Research to efficiently triangulate possible corrections.
- Notably improved suggestion accuracy by implementing sequence transposition algorithm

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## EDUCATION

### University of Waterloo

Sept '17 – Apr '22 (*expected*)

Honours Bachelor of Applied Science in Computer Engineering

- President's Scholarship of Distinction (2017)

### Relevant Coursework

- Fundamentals of Programming (ECE 150), Discrete Mathematics and Logic 1 (ECE 108), Digital Circuits and Systems (ECE 124), Object-Oriented Programming in C++ (New Horizons)

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## ACTIVITIES

- UW Rubik's Cube Club, McHacks V (2018), StarterHacks (2018)