# ZHIYI(ZOE) PAN

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## EDUCATION

**University of Michigan, Ann Arbor, MI** — Aug. 2019 - May. 2021
Bachelor of Computer Science
*Selected Coursework*: Advanced Compilers; Program Synthesis; Introduction to Operating Systems; Compiler Construction; Programming Languages; — GPA: 3.84

**Shanghai Jiao Tong University, Shanghai** — Sept. 2017 - May. 2021
Bachelor of Electronic and Computer Engineering — GPA: 3.55

## SKILLS

Proficient in OCaml, ReasoML, C/C++, HTML/CSS/Javascript; Experience in jQuery, vue.js, Python (Django), nginx.

## RESEARCH EXPERIENCE

**Research Assistant**, *prof. Cyrus Omar*, University of Michigan - Future of Programming Lab — Nov. 2019 - present
· Worked on a paper for a gradual bidirectional typing inference system - type hole inference.
· Developed undo/redo and history recording features for Hazel, a live functional programming environment featuring typed holes.
· Designed and implemented a history panel, which was used for EECS 490 teaching work in UM.

**Research Assistant**, *prof. Scott Mahlke*, University of Michigan — May 2020 - Jul. 2020
· Learnt and wrote optimization path by LLVM.
· Implemented genetic algorithm to find optimized combination of flags for gcc.

## PROJECTS

**Compiler for Decaf**, *EECS 483 Compiler Construction* — 2019 Winter
· Implemented a full-stack compiler for Decaf from lexical analyzing to code generation with clear static, link and run-time error reporting.
· wrote in C++ and compiled Decaf program into MIPS assembly program.
· Optimized compiler by register allocation improvement, dead code elimination, constant folding, subexpression elimination, constant propagation and forward copy propagation.

**Network File System**, *EECS 482 Operating System* — 2019 Winter
· Implemented a file system featuring encryption, authentication, failure tolerance and concurrency.

**Online Visual Novel**, *SJTU Network and Information Organization* — February 2019 - May 2019
· Implemented a visual novel featuring multiple story lines and endings, shopping store, archiving, achievement, HP systems.
· Designed and built front-end pages (Html/CSS/JS).
· Developed the back-end by Django, created database model and deployed it in the cloud server (Ubuntu).
· Revised it into a light framework and released on github.

## ACADEMIC EXPERIENCE

**Instructional Aide**, *EECS 490 Programming Languages*, University of Michigan — 2020 Fall
· 250-student upper level technical elective course
· duties including holding office hours and lab teaching

**Author**, *ICFP 2020*, Student Research Competition Track — Aug. 2020
· Won bronze medal in the student research competition.
· Submitted an extended abstract, *Type Hole Inference*.
· Participated in the poster session and communicated with ICFPers.
· Made a presentation on the final talk session.

## AWARDS

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| **Bronze**, *ICFP 2020*, Student Research Competition | Aug. 2020 |
| **Champion**, *12th Annual VEX U Robot Skills Challenge World Championship*, Louisville | Apr. 2019 |
| **Second Place**, *12th Annual VEX U Robot World Championship*, Louisville | Apr. 2019 |
| **Champion**, *VEX Robotics Asia Open*, Ningbo, Zhejiang | Feb. 2019 |
| **Robot Awards**, *Summer Design Expo Best Technology Award*, UM-SJTU JI | Nov. 2018 |
| **Scholarship**, *Undergraduate Excellent Scholarship*, Shanghai Jiao Tong University | 2017-2018 |