

# SHIH-HUNG LIU

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## EDUCATION

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**Master of Entertainment Technology**, Carnegie Mellon University Expected May 2025  
**M.Sc. Computer Science, Networking and Multimedia**, National Taiwan University 2018 - 2020  
**B.Sc. Digital Content & Technologies, B.A. English**, National Chengchi University 2014 - 2018

## EXPERIENCE

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**Software Engineer**, Cloud Application Team Apr 2021 - Jul 2023  
Synology New Taipei City, Taiwan

- **Led frontend development of the new SaaS backup product to its release.** [Vue, Webpack, TypeScript, GitLab CI]
  - Built the web portal for backup device management and file browser for snapshots.
  - Implemented encrypted multi-layered browser cache system, speeding up directory traversal by the order of 1000x.
- **Launched the Android client for SaaS password manager, the first Android application in Cloud Group.** [Android, Gradle, Kotlin, Java, GitLab CI]
  - Built the Android infrastructure and application from scratch, including OAuth authentication and E2E encryption.
  - Designed effective score-based heuristics for input field detection algorithm to support autofilling credentials across websites and apps in the wild.
  - Led cross-platform efforts to develop zero-trust password health analysis feature, and improved scanning efficiency by 30x using multi-threading and Myers bit-vector algorithm.

**Head Teaching Assistant**, Introduction to Programming 2017  
National Chengchi University Taipei City, Taiwan

- Led a group of 6 TAs and designed 6 programming assignments.
- Maintained the web platform for assignment peer-review.
- Provided assistance to 170 students with limited programming experience.

**President, Lecturer**, Digital Music Composition Club 2015 - 2017  
National Chengchi University Taipei City, Taiwan

- Taught members to compose digital music using Ableton Live and to perform as DJs.
- Coordinated a cross-club welcome party with 100+ people.

## PUBLICATIONS

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**HeadBlaster**, ACM SIGGRAPH '20 Technical Paper (1st author, presenter) doi.org/10.1145/3386569.3392482  
*A wearable approach to simulating motion perception using head-mounted air propulsion jets*

- Built the software/hardware prototype.
- Designed, implemented and conducted 5 human factor experiments; analyzed data, drafted and revised the paper.

**WalkingVibe**, ACM CHI '20 Paper (3rd author) doi.org/10.1145/3313831.3376847  
*Reducing VR sickness and improving realism while walking in VR using unobtrusive head-mounted vibrotactile feedback*

- Built the VR application and assisted in 240-person user study.

**PhantomLegs**, IEEE VR '19 Paper (1st author, presenter) doi.org/10.1109/VR.2019.8798158  
*Reducing VR sickness using head-worn haptic devices*

- Built the software/hardware prototype.
- Designed, implemented and conducted the experiments; analyzed data, drafted and revised the paper.

## SKILLS

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**Programming Languages** Kotlin, Java, TypeScript, JavaScript, C#, C++, Processing, C, Python, GLSL, SQL  
**Frameworks** Android, Vue.js, Unity Engine, Unreal Engine, React.js, Node.js, ASP.NET  
**Build/Deployment Tools** GitLab CI, Gradle, Jenkins, Docker, Webpack