

KAI-CHIEH (Kenneth) HUANG

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Education

M.S.,	Human Computer Interaction, Georgia Institute of Technology	May'21
B.S.,	Electrical Engineering, National Taiwan University	Jun'15

Skills

Languages: C++, JavaScript, HTML, CSS, Google Apps Script, Java, VBA, Perl, Tcl, Verilog
Tools: Unity, Arduino, Quartus II, Solidworks, Adobe XD **Other:** UX research, UX design

Work Experience

HCI Research Assistant, National Taiwan University / National Chiao Tung University Oct'18-Jul'19

- Researched haptic feedback on stylus and proposed a novel feedback: balance shifting feedback.
- Prototyped from scratch a fully functional stylus capable of changing weight distribution according to stylus orientation and computer input.
- Overcame Gimbal lock issues, relating to stylus orientation, by inventing algorithms involving quaternions and vectors.
- Resolved motor control overshoot issues by implementing a unique PID controller.
- Created games and applications integrated with the prototype stylus.

IDE Developer Intern, MediaTek Inc. Jul'14-Aug-14

- Communicated with colleagues to understand how the in-house IDE was used and identified needs.
- Automated multiple sets of IDE operations by creating codes that parse files and commands, manipulate files, and integrate multiple IC design tools, eliminating minutes of manual labor from each design iteration.
- Transformed the IDE user interface with aesthetic designs and a clearer display of information, enhancing usability and user satisfaction.

Projects

Online Statistic Reporting and Managing System for Missionaries (side project) Nov'17-Apr'18

- Collaborated with stats reporters and organization leaders to understand their needs and iteratively design, develop, and evaluate the system.
- Redesigned and automated the stats collection process and reduced reporting and collecting/processing time by 25% and 95% respectively.
- Created a statics tracking/visualization system, by implementing the UI and data storage on Google Sheets using Apps Script, which increased missionary leaders' understanding of stats collected.
- Reduced human error in stats reporting by comparing each entry with history data.

Computer Control via Face Tracking (undergraduate research project) Sep'14-Jul'15

- Created a webcam-based system, utilizing OpenCV resources, that enables users to remotely control the computer with the head.
- Developed algorithms and image processing techniques to detect head/facial gestures and eye winks.
- Invented a Kalman-like filter which smoothes noisy webcam data, enabling users to accurately control the cursor with the head with little delay.

Outfit Visualization Device (class project) Sep'14-Jan'15

- Designed the system architecture for an FPGA device that assists the user in selecting an outfit.
- Implemented background-removal algorithms and swipe animation at hardware level using Verilog.

Honors and Awards

Presidential Award, 2nd Semester 2014/2015 at National Taiwan University Oct 2015

- Top 5% semester GPA among all seniors in the Electrical Engineering Department.

Semi-finalist, 2015 Innovate Asia FPGA and SoC Design Contest Jan 2015

- Top 30 in Taiwan in an international digital consumer product design competition.

Gold Medal, 2nd NTU Presentation Contest Dec 2014

- Top 3/115 in a national presentation delivery contest.

Publication

Huang, K. C., Huang, Y. L., & Chien, S. Y. (2017). User Experience Enhancing Filter for a Webcam Based Human Computer Interaction. *GCCE'17* (pp. 26-27). Nagoya, Japan: IEEE.