Yun Suen Pai

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EDUCATION

Keio University — Yokohama, Japan
Ph.D Media Design — September 2015 - September 2018
Thesis: Convex Interactions: Towards Efficient Human Motion In Peripersonal Space Using Virtual Reality

University of Malaya — Kuala Lumpur, Malaysia
Masters Engineering Science — August 2013 - August 2015
Thesis: Development of an Immersive Augmented Reality-Based Computer Numerical Control Simulation System

University of Malaya (CGPA 3.42/4.00) — Kuala Lumpur, Malaysia
BS Computer Aided Design and Manufacturing Engineering — July 2009 - July 2013
Thesis: Augmented Reality-Based Programming, Planning, and Simulation of a Robotic Work Cell

WORK EXPERIENCE

Keio University — Yokohama, Japan
Employed Researcher — October 2018 | Present

- Conduct Research under the Kiban B Project "Deep Learning the Human Mind"

Keio University — Yokohama, Japan
Research Assistant — August 2017 | September 2018

- Perform collaborative research and development with NTT Media Intelligence Laboratories

University of Malaya — Kuala Lumpur, Malaysia
Research Assistant — August 2013 | August 2015

- Conduct research and development on a project-basis

MK (M) Electric HoneyWell Sdn. Bhd. — Kuala Lumpur, Malaysia
Intern Trainee — June 2012 | September 2012

- Internship under the Global Product Design Centre (GPDC) Department

TEACHING EXPERIENCE

Keio University

- Masters Tutoring: Introduction to HCI (2018)
- Workshop (Master Level): Using WebVR with Vizor Interface (2016, 2017)
- Masters Tutoring: Research Methodology (2017)
- Supervisor of 2 Master Thesis with topics in VR interactions and Machine Learning

University of Malaya

- Masters Tutoring: Using the KukaSIM simulation program (2015)
- Undergraduate Tutoring: Programming for a Programmable Interface Controller (PIC) (2015)
- Masters Tutoring: Finding the inverse kinematics of a KUKA robot arm (2014)

PROFESSIONAL RESEARCH ACTIVITIES

- Paper reviewer for ISWC 2017, IMWUT (UbiComp) 2017, MobileHCI 2017, PervasiveHealth 2017, ISMAR 2018, ISWC 2018, IMWUT (UbiComp) 2018, Siggraph Asia 2018 Emerging Technologies, MUM 2018 (PC member), Transactions on Fuzzy Systems, Plos One, CHI 2019.
- Supported and attended the Shonan Meeting 135 "Augmented Reality in Human-Computer Interaction".
- Presented at the CHI 17 Workshop on Amplification and Augmentation of Human Perception (May 2017)
- Supported and attended the Dagstuhl Seminar 17062 "Beyond VR and AR: Reimagining Experience Sharing". Coordinated and edited the Seminar Report.
- Participated in UIST Doctoral Symposium 2016.

Programming Language:	C#, Python, C++
Libraries and SDK:	Unity3D, Leap Motion, Kinect, OpenBCI, Google Daydream, Google Cardboard, Tobii Eye X, Pupillabs, Vuforia Engine, ARCore, ARKit, ZED Mini, ARToolKit, Myo, Oculus SDK, SteamVR SDK, Jins Meme SDK
3D Modelling:	SolidWorks, PTC Creo, Blender, AutoCAD

Best Poster Award SUI 2017
Best Poster for AnyOrbit: Fluid 6DOF spatial
navigation of virtual environments using orbital motion October 2016

AUN/SEED-Net Full Scholarship Japan International Cooperation Agency
Full scholarship for Ph.D program September 2015

Best Presentation ICMST 2014
Best presentation for Implementation of a Voice-
Control System for Issuing Commands in a Virtual
Manufacturing Simulation Process June 2014

MyBrain15 MyMaster Scholarship Ministry of Higher Education Malaysia
Full scholarship for Masters program August 2013

Institution Best Project Institution of Mechanical Engineers UK
Best Project entitled Augmented Reality Based
Programming, Planning, and Simulation of a Robotic
Work Cell August 2013

Best Undergraduate Thesis Award Faculty of Engineering, University of Malaya
Best Undergraduate thesis at CAD/M Engineering June 2013

Keio Young Fellow Research program 2018 Keio University
Grant amount: 500,000¥ for proposal entitled Convex Interactions:
Physiological Signal-Driven Virtual Reality in Social Spaces July 2018

Keio Grant-in-Aid program 2017 Keio University
Grant amount: 500,000¥ for proposal entitled Physiological
Signal-Driven Virtual Reality in Social Spaces July 2017

Keio Kenkyuu no Susume program 2017 Keio University
Grant amount: 700,000¥ for proposal entitled Physiological
Signal-Driven Virtual Reality in Social Spaces July 2017

Keio Grant-in-Aid program 2016 Keio University
Grant amount: 300,000¥ for proposal entitled Physiological
Sensing-Based Virtual Reality June 2016

Keio Kenkyuu no Susume program 2016 Keio University
Grant amount: 500,000¥ for proposal entitled Physiological
Sensing-Based Virtual Reality June 2016

Keio Young Fellow Research program 2016 Keio University
Grant amount: 500,000¥ for proposal entitled Physiological
Sensing-Based Virtual Reality June 2016

Video operating device, video operation method, and image manipulation programs
Patent Number: 2018-141395
Contributors: Kai Kunze, Pai Yun Suen, Takuro Nakao, Megumi Isogai, Daisuke Ochi, Hideaki Kimata

Using a computer program to provide image-based interaction
Patent Number: 2017-137097
Contributors: Daisuke Ochi, Megumi Isogai, Hideaki Kimata, Outram Benjamin Ian, Pai Yun Suen,

Kai Kunze, Kouta Minamizawa

JOURNAL PUBLICATIONS

[1]**Assessing Hands-Free Interactions for VR using Eye Gaze and Electromyography**
Virtual Reality
https://link.springer.com/article/10.1007/s10055-018-0371-2
Yun Suen Pai, Tilman Dingler, Kai Kunze

[2]**Virtual planning, control, and machining for a modular-based automated factory operation in an augmented reality environment** *Scientific Reports*
https://www.nature.com/articles/srep27380
Yun Suen Pai, Hwa Jen Yap, Siti Zawiah Md Dawal, S Ramesh, Sin Ye Phoon

[3]**Interactive solution approach for loop layout problem using virtual reality technology**
The International Journal of Advanced Manufacturing Technology
https://link.springer.com/article/10.1007/s00170-016-9219-7
Sin-Ye Phoon, Hwa-Jen Yap, Zahari Taha, Yun-Suen Pai

[4]**Augmented reality–based programming, planning and simulation of a robotic work cell**
Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture
http://journals.sagepub.com/doi/abs/10.1177/0954405414534642
Yun Suen Pai, Hwa Jen Yap, Ramesh Singh

[5]**Development of an Augmented Reality-Based G-Code Generator in a Virtual CNC Milling Simulation** *International Journal of Computer Science and Engineering (IJCSE)*
Yap Hwa Jen, Pai Yun Suen, Chang Siow-Wee, Yap Keem Siah

[6]**Framework of Augmented Reality Approach Towards Ergonomic Assessment of Driver Vehicle Package Design** *Jurnal Teknologi*
Chew Sze Soon, Raja Ariffin Raja Ghazilla, Yap Hwa Jen, Pai Yun Suen

CONFERENCE PUBLICATIONS

[7]**PinchMove: Improved Accuracy of User Mobility for Near-Field Navigation in Virtual Environments** *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI 2018)*
https://dl.acm.org/citation.cfm?id=3229470
Yun Suen Pai, Zikun Chen, Liwei Chan, Megumi Isogai, Hideaki Kimata, Kai Kunze

[8]**AnyOrbit: Orbital Navigation in virtual environments with eye-tracking** *ACM Symposium on Eye Tracking Research and Applications (ETRA 2018)*
https://dl.acm.org/citation.cfm?doid=3204493.3204555
Benjamin I Outram, Yun Suen Pai, Tanner Person, Kouta Minamizawa, Kai Kunze

[9]**Armswing: using arm swings for accessible and immersive navigation in AR/VR spaces**
Proceedings of the 16th International Conference on Mobile and Ubiquitous Multimedia (MUM 2017)
https://dl.acm.org/citation.cfm?id=3152864
Yun Suen Pai, Kai Kunze

[10]**Development of Augmented Reality Approach Towards Ergonomic Assessment of Driver Vehicle Package Design** *3rd International Conference on Ergonomics and 1st International Conference of Industrial Engineering (ICE and ICIE 2015)*
Chew Sze Soon, Raja Ghazilla Raja Ariffin, Yap Hwa Jen, Pai Yun Suen

[11]**Augmented Reality Assisted Factory Layout Planning and Analysis for a Flexible Manufacturing Cell** *Proceedings of the 3rd International Conference on Computer Science and Computational Mathematics 2014 (ICCSCM 2014)*
Pai Yun Suen, Yap Hwa Jen, Singh Ramesh, Chang Siow-Wee, Cheong Kok Leong Royston, Taha Zahari

[12]**Implementation of a Voice-Control System for Issuing Commands in a Virtual Manufacturing Simulation Process** *Advanced Materials Research*
https://www.scientific.net/AMR.980.165
Yun Suen Pai, Hwa Jen Yap, Ramesh Singh

POSTER, DEMO, AND WORKSHOP PUBLICATIONS

[13]**Virtual gaze: exploring use of gaze as rich interaction method with virtual agent in**

interactive virtual reality content *Proceedings of the 24th ACM Symposium on Virtual Reality Software and Technology (VRST 2018)*
https://dl.acm.org/citation.cfm?id=3281587
Stevanus Kevin, Yun Suen Pai, Kai Kunze

[14]**UbiTrain: Leveraging the Physical and Virtual Environment for Ubiquitous Sports Training** *Proceedings of the 2018 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2018 ACM International Symposium on Wearable Computers (Ubicomp 2018)*
https://dl.acm.org/citation.cfm?id=3267646
Yun Suen Pai, Takuro Nakao, Megumi Isogai, Hideaki Kimata, Kai Kunze

[15]**Make-a-Face: A Hands-free, Non-Intrusive Device for Tongue/Mouth/Cheek Input Using EMG** *ACM SIGGRAPH 2018 Posters (Siggraph 2018)*
https://dl.acm.org/citation.cfm?id=3230784
Takuro Nakao, Yun Suen Pai, Megumi Isogai, Hideaki Kimata, Kai Kunze

[16]**AnyOrbit: Orbital Navigation in virtual environments with eye-tracking** *ACM Symposium on Eye Tracking Research and Applications (ETRA 2018)*
https://dl.acm.org/citation.cfm?doid=3204493.3209579
Benjamin I Outram, Yun Suen Pai, Tanner Person, Kouta Minamizawa, Kai Kunze

[17]**face2faceVR: using AR to assist VR in ubiquitous environment usage** *Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers (Ubicomp 2017)*
https://dl.acm.org/citation.cfm?id=3123155
Yun Suen Pai, Megumi Isogai, Daisuke Ochi, Hideaki Kimata, Kai Kunze

[18]**GazeSphere: navigating 360-degree-video environments in VR using head rotation and eye gaze** *ACM SIGGRAPH 2017 Posters (Siggraph 2017)*
https://dl.acm.org/citation.cfm?id=3102183
Yun Suen Pai, Benjamin I Outram, Benjamin Tag, Megumi Isogai, Daisuke Ochi, Kai Kunze

[19]**CleaVR: collaborative layout evaluation and assessment in virtual reality** *ACM SIGGRAPH 2017 Posters (Siggraph 2017)*
https://dl.acm.org/citation.cfm?id=3102186
Yun Suen Pai, Benjamin I Outram, Benjamin Tag, Megumi Isogai, Daisuke Ochi, Hideaki Kimata, Kai Kunze

[20]**In360: A 360-degree-video platform to change students preconceived notions on their career** *2017 ACM SIGCHI Conference on Human Factors in Computing Systems, CHI EA 2017 (CHI 2017)*
https://dl.acm.org/citation.cfm?doid=3027063.3053211
Fathima Assilmia, Yun Suen Pai, Keiko Okawa, Kai Kunze

[21]**A Major Challenge for Amplification Technologies - Designing Interactions for Social Spaces** *Proceedings of the CHI 2017 workshop on Amplification and Augmentation of Human Perception (CHI 2017)*
Yun Suen Pai, Benjamin Tag, George Chernyshov, Kai Kunze

[22]**Brain Activity Tracking Using Smart Eyewear** *Proceedings of the CHI 2017 workshop on Amplification and Augmentation of Human Perception (CHI 2017)*
George Chernyshov, Benjamin Tag, Yun Suen Pai, Kai Kunze

[23]**Initial Model of Social Acceptability for Human Augmentation Technologies** *Proceedings of the CHI 2017 workshop on Amplification and Augmentation of Human Perception (CHI 2017)*
Chloe Eghtebas, Yun Suen Pai, Kaisa Väänänen, Thies Pfeiffer, Joachim Meyer, Stephan Lukosh

[24]**Squint to Zoom: Augmenting our Sense of Vision with Zoom Caps** *Proceedings of the CHI 2017 workshop on Amplification and Augmentation of Human Perception (CHI 2017)*
https://dl.acm.org/citation.cfm?doid=3027063.3053211
George Chernyshov, Yun Suen Pai, Benjamin Tag, Kai Kunze

[25]**Physiological Signal-Driven Virtual Reality in Social Spaces** *Proceedings of the 29th Annual Symposium on User Interface Software and Technology (UIST 2016)*
https://dl.acm.org/citation.cfm?id=2984787

Yun Suen Pai

[26]**Transparent reality: Using eye gaze focus depth as interaction modality** *Proceedings of the 29th Annual Symposium on User Interface Software and Technology (UIST 2016)*
https://dl.acm.org/citation.cfm?id=2984754
Yun Suen Pai, Benjamin Outram, Noriyasu Vontin, Kai Kunze

[27]**AnyOrbit: Fluid 6DOF spatial navigation of virtual environments using orbital motion**
Proceedings of the 2016 Symposium on Spatial User Interaction (SUI 2016)
https://dl.acm.org/citation.cfm?id=2989195
Benjamin I Outram, Yun Suen Pai, Kevin Fan, Kouta Minamizawa, Kai Kunze

[28]**GazeSim: simulating foveated rendering using depth in eye gaze for VR** *ACM SIGGRAPH 2016 Posters (Siggraph 2016)*
https://dl.acm.org/citation.cfm?id=2945153
Yun Suen Pai, Benjamin Tag, Benjamin Outram, Noriyasu Vontin, Kazunori Sugiura, Kai Kunze

OTHER ACTIVITIES

- Collaborate with NTT Media Intelligence Laboratories for publications [7,14-15, 17-19] and patent filing (September 2016 - April 2017, September 2017 - February 2018, July 2018 - September 2018)
- Supervising Masters student (September 2015 - Current)
- Invited to conduct a workshop entitled "Virtual Reality: The What, Why and How" at the EDGEOf Workshop, Shibuya, Japan
- Invited to give a talk at the Department of Computer Science, National Chiao Tung University, Taiwan (November 2017)
- Invited to give a talk at Google X (May 2017)
- Organized a collaborative workshop between University of Malaya and Aerospace Malaysia Innovation Centre (AMIC) (December 2016 - January 2017)
- Collaborate with Fujitsu Design for publications [23,25] (December 2015 - April 2016)
- Started PaperOwl, a proof-reading service (July 2015 - February 2018)
- Developed an AR-based Drilling Simulator in collaboration with AirBus Malaysia (November 2014)
- Awarded for best National IMechE Student Chapter (October 2013)
- Dean List for a Semester (February 2013)
- Founded the Institute of Mechanical Engineers (IMechE) Student Chapter at the Faculty of Engineering, University of Malaya (June 2010 - July 2013)
- Participated in Robocon 2010 and 2011 (September 2010, August 2011)