

Vincent W.-S. Tseng

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EDUCATION

PhD in Information Science, Cornell University, NY, USA August 2014 — present
Committee: Tanzeem Choudhury (chair), Malte Jung, and Kilian Weinberger
Concentrations: Information Systems and Human Computer Interaction (HCI)
Minor: Computer Science

B.S. in Electrical Engineering, National Taiwan University, Taipei, Taiwan 2009 — 2013
GPA: 3.8/4.0

SKILLS

Programming Languages:

Python, Java, C++, C, Android, Objective-C, Swift, Matlab, R

Methods:

Machine Learning, Bayesian Analysis, Statistical Analysis, Rapid Prototyping, Longitudinal Study.

RELEVANT COURSEWORK

Machine Learning, Statistical Methods, Bayesian Machine Learning, Behavioral and Information Technology, Human-centered Design Methods, Rapid Prototyping.

PATENT

Wen-Sheng Tseng, Sourav Bhattacharya and Nicholas Lane. A system for training binary network that accelerates runtime inferencing and optimizing accuracy based on device resource constraints. PCT/EP2017/083005, June 20, 2019.

WORK EXPERIENCE

Research Intern, Google Research, CA, USA May 2019 — January 2020
Mentor: Nachiappan Valliappan and Vidhya Navalpakkam
Role: Built a mobile application and designed a user study to evaluate the feasibility of using users' phone usage data to assess their digital well-being.

Research Intern, FX Palo Alto Laboratory, CA, USA June 2018 — August 2018
Mentors: Matthew Lee and Daniel Avrahami
Role: Designed and built a conversational website-blocking system to help people transition from break to work. Conducted an in-the-wild user study to evaluate the effectiveness of the system.

Research Intern, Bell Labs, Cambridge, UK June 2017 — September 2017
Mentors: Sourav Bhattacharya and Nicholas Lane
Role: Designed binary neural network architectures that have low memory and compute footprint. Proposed an architecture where the filters in the architecture can be generated on-the-fly using a set of deterministic binary filters and only the coefficients need to be stored in the memory.

Research Assistant, Multimedia and Machine Learning Lab, Academia Sinica, Taiwan 2012 — 2013
Mentor: Yu-Chiang Frank Wang
Role: Studied domain adaptation for cross-view image recognition where the test images and training images are taken from different angles. Proposed a low-rank based model that can map images

taken from different views into the same domain and meanwhile add structural incoherence between the transformed images of different categories to achieve better recognition accuracy.

TEACHING EXPERIENCE

Info 4120/6120: Ubiquitous Computing, Cornell University January 2018 — December 2018

Role: Giving lectures on techniques for building ubiquitous computing systems, including mobile programming, hardware prototyping, machine learning, computer vision, and study design. Designing lab sessions to enable students to apply the techniques to their final projects.

Consultant, System Engineering, Cornell University August 2016 — January 2017

Role: Advised master students in the department of system engineering on building health-sensing and health-care systems.

PUBLICATIONS

Journal Articles:

- J06 **Vincent W.-S. Tseng**, Jean Costa, Malte F. Jung, and Tanzeem Choudhury. "Using Smartphone Sensor Data to Assess Inhibitory Control in the Wild: Longitudinal Study." *JMIR Preprints*. DOI: [10.2196/preprints.21703](https://doi.org/10.2196/preprints.21703) (under review).
- J05 **Vincent W.-S. Tseng**, Akane Sano, Dror Ben-Zeev, Rachel Brian, Andrew T. Campbell, Marta Hauser, John M. Kane, Emily A. Scherer, Rui Wang, Weichen Wang, Hongyi Wen, and Tanzeem Choudhury. "Using Behavioral Rhythms and Multi-task Learning to Predict Fine-grained Symptoms of Schizophrenia." *Sci Rep* **10**, 15100 (2020). <https://doi.org/10.1038/s41598-020-71689-1>.
- J04 Daniel A Adler, Dror Ben-Zeev, **Vincent W-S Tseng**, John M Kane, Rachel Brian, Andrew T Campbell, Marta Hauser, Emily A Scherer, and Tanzeem Choudhury. "Predicting Early Warning Signs of Psychotic Relapse from Passive Sensing Data: An Approach Using Encoder-Decoder Neural Networks." *JMIR Mhealth Uhealth* **2020**;8(8):e19962.
- J03 Dror Ben-Zeev, Rachel Brian, Rui Wang, Weichen Wang, Andrew T. Campbell, Min S. H. Aung, Michael Merrill, **Vincent W.-S. Tseng**, Tanzeem Choudhury, Marta Hauser, John M. Kane, Emily A. Scherer. "CrossCheck: Integrating Self-Report, Behavioral Sensing, and Smartphone Use to Identify Digital Indicators of Psychotic Relapse." *Psychiatric Rehabilitation Journal*. **2017 Apr 3**. doi: [10.1037/prj0000243](https://doi.org/10.1037/prj0000243).
- J02 Gillian M. Sandstrom, **Vincent W.-S. Tseng**, Jean Costa, Fabian Okeke, Tanzeem Choudhury, Elizabeth W. Dunn. "Talking Less during Social Interactions Predicts Enjoyment: A Mobile Sensing Pilot Study." *PLoS ONE* **11**(7): e0158834. doi: [10.1371/journal.pone.0158834](https://doi.org/10.1371/journal.pone.0158834).
- J01 Miao-En Chien, CyunMeng Jheng, NiMiao Lin, HsienHui Tang, Taele Paul, **Wen-Sheng Tseng**, Mike Y. Chen. "iCAN: A Tablet-Based Pedagogical System for Improving Communication Skills of Children with Autism." *International Journal of Human-Computer Studies* **73** (2015): 79-90.

Conference Papers:

- C11 Weichen Wang, Shayan Mirjafari, Gabriella Harari, Rui Wang, Dror Ben-Zeev, Rachel Brain, Kizito Masaba, **Vincent W.-S. Tseng**, Akane Sano, Hongyi Wen, Tanzeem Choudhury, Emily Scherer, John M. Kane, Marta Hauser, and Andrew Campbell. "Assessing the Social Functioning of Patients Living with Schizophrenia using Mobile Phones." In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI'20)*.
- C10 **Vincent W.-S. Tseng**, Matthew L. Lee, Laurent Denoue and Daniel Avrahami. "Overcoming Distractions during Transitions from Break to Work using a Conversational Website-Blocking System." In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI'19)*.
- C09 **Vincent W.-S. Tseng**, Saeed Abdullah, Jean Costa and Tanzeem Choudhury. "AlertnessScanner: What Do Your Pupils Tell About Your Alertness?" In *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'18)*.

Last updated: September, 2020

- C08 **Vincent W.-S. Tseng**, Sourav Bhattachara, Fernández-Marqués, Milad Alizadeh, Catherine Tong and Nicholas D. Lane. "Deterministic Binary Filters for Convolutional Neural Networks." *In Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI'18)*.
- C07 Javier Fernández-Marqués, **Vincent W.-S. Tseng**, Sourav Bhattachara and Nicholas D Lane. "On-the-fly deterministic binary filters for memory efficient keyword spotting applications on embedded devices." *In Proceedings of the 2nd International Workshop on Deep Learning for Mobile Systems and Applications (EMDL'18)*.
- C06 Javier Fernández Marqués, **Vincent W.-S. Tseng**, Sourav Bhattacharya and Nicholas Donald Lane. "BinaryCmd: Keyword Spotting with deterministic binary basis." *In the 2018 Conference on Systems and Machine Learning (SysML'18)*.
- C05 **Vincent W.-S. Tseng**, Saeed Abdullah, Michael Merrill, Min Hane Aung, Franziska Wittleder and Tanzeem Choudhury. "Assessing Mental Health Issues on College Campuses: Preliminary Findings from a Pilot Study." *In Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'16)*.
- C04 Rui Wang, Min S. H. Aung, Saeed Abdullah, Rachel Brian, Andrew T. Campbell, Tanzeem Choudhury, Marta Hauser, John Kane, Michael Merrill, Emily A. Scherer, **Vincent W.-S. Tseng**, and Dror Ben-Zeev. "CrossCheck: Toward Passive Sensing and Detection of Mental Health Changes in People with Schizophrenia." *In Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'16)*.
- C03 **Vincent W.-S. Tseng**, Lun-Kai Hsu, Li-Wei Kang, and Yu-Chiang Frank Wang. "Cross-View Action Recognition via Low-Rank Based Domain Adaptation." *In Image Processing (ICIP), 2013 20th IEEE International Conference on (pp. 3244-3248)*.
- C02 Lun-Kai Hsu, **Vincent W.-S. Tseng**, Li-Wei Kang, and Yu-Chiang Frank Wang. "Bridging the Gap Between Expression and Emotion Recognition." *In 2013 IEEE International Conference on Multimedia and Expo (ICME), Theme Track for Multimedia for Humanity*. (Oral Presentation; Nominated for Best Paper Award)
- C01 Sheng-Jhe Hsu, **Vincent W.-S. Tseng**, Fu-Chieh Hsu and Yung-Ying Lo. "iSpine: A Motion-sensing Edutainment System for Improving Children's Spinal Health." *In CHI'13 Extended Abstracts on Human Factors in Computing Systems*.

SERVICE

Conference Organizing Committees

- Webmaster Co-Chair, Pervasive Health 2017

Student Volunteering

- ACM ISWC/UbiComp 2019
- ACM ISWC/UbiComp 2016
- ACM UbiComp Program Committee Meeting 2015

Reviewer

- ACM IMWUT 2020
- ACM CSCW 2020
- ACM IMWUT 2019
- ACM IMWUT 2018
- ACM Pervasive Health 2018
- ACM CHI 2017
- ACM IMWUT 2017
- IEEE ICIP 2013
- IEEE ICME 2013

Student Representative at Cornell

- Graduate and Professional Student Assembly
- Admission Committee

2017
2016

INVITED TALKS

Frontier of AI-Assisted Care (FAC) Scientific Symposium. "Developing Clinically Interpretable Machine Learning Models to Predict Fine-Grained Symptom Trajectory of Schizophrenia and Identify Patients At Risk." September 2019.

AWARDS

ACM SIGCHI Student Game Competition Finalist

2013

Trend Micro Big Data Innovation Programming Contest Third Place

2013