STEPHANIE TAN

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EDUCATION

PhD candidate in Computer Science *Jan. 2018 - Jul. 2022 (expected)*
Delft University of Technology (TU Delft), Netherlands
Research areas: applied machine learning, deep learning, time series, human interactions

MS in Computing Science *Sep. 2016 - Oct. 2017*
Imperial College London, UK

BS with Honors in Chemical Engineering *Sep. 2011 - Jun. 2015*
California Institute of Technology (Caltech), USA
Research internships: NASA Jet Propulsion Laboratory (2012, 2013) and Bio-Rad Laboratories (2014)

WORK EXPERIENCE

PhD Researcher | Delft University of Technology *Jan. 2018 - present*

- Developed various **multimodal machine learning** models (incl., LSTMs and graph networks) outperforming state-of-the-art in predicting human behavior using **vision and wearable sensor time series data**
- Collected **high-fidelity large-scale datasets** on human behavior; designed **data- and AI-ethics aware** data collection, annotation, and management platforms
- Designed a hardware solution for **in-the-wild and real-time multimodal data synchronization**, scaled and deployed the system to 10+ cameras and 50+ wearable sensors with <13 ms latency

Applied Scientist | Amazon *Feb. - Aug. 2021 (internship)*

- Developed **decision tree-based ML product and automated pipeline** to identify root-causes of concessions in Amazon operations from millions of rows datasets.
- Set up and deployed via **AWS cloud infrastructure** to 5 EU countries each with different business owners; projected to have annual €2.5M net savings
- Communicated with stakeholders from different organizations to align business needs for the product

Graduate Researcher/External Collaborator

- Developed a **natural language processing** (based on RNN/LSTM) solution for fact-checking on Twitter by identifying semantic entailment between tweets and news articles (*URL*)
- Designed an automatic template and layout recommendation tool for graphic design in **Processing/Java**
- Developed a deep learning solution for design of novel materials with tailored properties; collaboration with material scientists led to a new class of metamaterials (*URL*)

TECHNICAL SKILLS

- **Programming languages:** Python, C++, SQL, Shell, Matlab
- **Deep learning:** PyTorch, Tensorflow/Keras
- **Cloud computing:** AWS (Redshift, S3, EC2, Batch, Step Function, Lambda, Cloudwatch)
- **Others:** Docker, Git, AWS CI/CD, scikit-learn, pandas, seaborn, OpenCV, statistics

SELECTED PUBLICATIONS

- **S. Tan**, D. M. J. Tax, H. Hung, **Multimodal conversational group detection in social interactions**, *In preparation* (2022).
- **S. Tan**, D. M. J. Tax, H. Hung, **Head and body orientation estimation with sparse weak labels in free standing conversational settings**, *Submitted* (2021).
- J. Quiros, **S. Tan**, et al., **Covfee: an extensible web framework for continuous-time annotation of human behavior**, *Submitted* (2021).
- C. Raman, J. Quiros, **S. Tan** (co-first author), et al., **ConfLab: extreme in-the-wild multimodal multisensor data collection and sharing**, *Submitted* (2021).
- **S. Tan**, D. M. J. Tax, H. Hung, **Multimodal joint head orientation estimation in interacting groups via proxemics and interaction dynamics**, *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)* (2021), Vol.5, No.1, 1-22.
- C. Raman, **S. Tan** (co-first author), H. Hung, **Modular multimodal-multisensor data acquisition and synchronization of audio, video, and wearable device data**, *Proceedings of the 28th ACM International Conference on Multimedia (ACM-MM)* (2020), 3586-3594.
- S. Kumar, **S. Tan**, L. Zheng, D. M. Kochmann, **Inverse-designed spinodoid metamaterials**, *npj Comput. Mater.,* 6 (2020), 73.
- H. Hung, C. Raman, E. Gedik, **S. Tan**, J. Quiros, **Multimodal data collection for social interaction analysis in-the-wild**, *Proceedings of the 27th ACM International Conference on Multimedia (ACM-MM)* (2019), 2714-2715.
- **S. Tan**, D. M. J. Tax, H. Hung, **Improving temporal interpolation of head and body pose using Gaussian process regression in a matrix completion setting**, *Proceedings of the Group Interaction Frontiers in Technology (GIFT)* (2018), 1-8.