

# Yan Zhang

✉ cyanogenoid@gmail.com • 🌐 cyanogenoid.com  
🇩🇪 Cyanogenoid • 🇩🇪 Nationality: German

## Education

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**PhD Machine Learning (thesis submitted)** Southampton, UK  
*University of Southampton* 2016–2020

Thesis: *Learning to Represent and Predict Sets with Deep Neural Networks*

TL;DR: Deep neural nets with *sets* as input (set-to-vec) or output (vec-to-set).

4 first-author papers in **top-tier** Machine Learning conferences (NeurIPS and ICLR).

## Publications.....

**ICLR 2020** Yan Zhang, Jonathon Hare, Adam Prügel-Bennett. FSPool: Learning set representations with featurewise sort pooling. In *International Conference on Learning Representations*, 2020.

**NeurIPS 2019** Yan Zhang, Jonathon Hare, Adam Prügel-Bennett. Deep Set Prediction Networks. In *Advances in Neural Information Processing Systems 32*, 2019.

**ICLR 2019** Yan Zhang, Jonathon Hare, Adam Prügel-Bennett. Learning representations of sets through optimised permutations. In *International Conference on Learning Representations*, 2019.

**ICLR 2018** Yan Zhang, Jonathon Hare, Adam Prügel-Bennett. Learning to count objects in natural images for visual question answering. In *International Conference on Learning Representations*, 2018.

**BSc Computer Science: First Class Honours** Southampton, UK  
*University of Southampton* 2013–2016

- **Top grades of the year** in Computer Science **for all three years**. Average mark: **89.75**.
- Participated in IEEEExtreme programming competitions (group of 3), placing 79th worldwide (2013) and 50th worldwide (2014) out of ~2000 teams.
- Prizes: Zepler Project Prize (Bachelor thesis mark above 90), ICL Prize, Netcraft Prize, BAE Systems Applied Intelligence Prize, Winton Capital Management Prize.

## Experience

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- Contributor to *Leela Chess Zero* project: the open-source initiative to replicate and improve on *AlphaZero* by *DeepMind*. Implemented state-of-the-art Deep Learning techniques and diagnostics in **PyTorch** and **TensorFlow** to improve neural network training. Implemented flatbuffers in the Leela engine (C++) for an improved data pipeline. Leela is now one of the top 2 chess engines in the world.
- Gave 45 minute talk about my research to FiveAI (self-driving car company), will give 45 minute talk to London Machine Learning Meetup on 19th February 2020.
- Open-sourced **PyTorch** implementations of all my papers and several state-of-the-art Machine Learning papers, including data preparation, neural network training, evaluation, and visualisations.
- Teaching assistant for *Advanced Machine Learning* module at University of Southampton during PhD, helping students with their ML projects when they get stuck. Ran tutorials for new PhD students to get started with Deep Learning.
- Actively programmed in **Python** since 2012, always using **git**. Learning **Rust**. Used **Java** for university, including a RoboCode bot that won the first-year Computer Science RoboCode tournament.