

Yuming Shen

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Education

University of East Anglia

PHD IN COMPUTER VISION AND MACHINE LEARNING

- Supervised by Prof. Ling Shao

Norwich, UK

Feb. 2015 - Jul. 2018

University of Sheffield

MSc IN ELECTRICAL AND ELECTRONIC ENGINEERING

- Awarded with Distinction

Sheffield, UK

Sep. 2011 - Nov. 2012

Tongji University

BEng IN ELECTRONIC ENGINEERING AND INFORMATION

- Top 10% academic performance

Shanghai, China

Sep. 2007 - Jul. 2011

Employment

University of Oxford

POSTDOC RESEARCHER

- Working with Prof. Philip Torr

Oxford, UK

Aug. 2021 - Present

eBay

APPLIED RESEARCHER 2

- **Fraud Clicking Detection:** Developing OOD model and classifiers to detect advertisement cheats.

Shanghai, China

Jul. 2020 - Jul. 2021

Inception Institute of Artificial Intelligence (IIAI)

RESEARCH SCIENTIST

- **Prototyped Chatbot (Delivered to Tony Robbins):** A prototyped chatbot system was designed and delivered mimicking the knowledge of a USA celebrity and life coach as our client, Tony Robbins, within 6 months. Yuming was responsible for the following issues: (1) overall design (the model hierarchy and dependency), (2) FSM-based core dialogue control unit (It is basically state machine implemented with PyTransition. Transitions are determined by the mixed decisions of our intention classifier and some intuitive rules.), (3) fallback generic chitchat module (a Seq2Seq model + attention trained on English dialog corpus, replaced by a self-implemented transformer later), (4) emotion and intent detection module (a 7-class text-CNN classifier), (5) body language and facial expression recognition (a frame-based CNN recognition model trained on real and synthesized 3D data).
- **News Analysis (Delivered to DayPop):** Co-leader of a 11-member team on document content analysis APIs. This project covers over 10 functionalities overall, including document classification, NER, open relation extraction, text summarization, fake news detection, etc. **(1) Progress management.** I am responsible for assigning tasks to each member, planning the sprint progress on Jira and organizing weekly meeting. **(2) News document classification.** I collected news data in English subjected to around 40 categories, and trained a BERT classifier on them. To handle Arabic text with less accessible resources, we translate the document into English first with our own NMT model, and then do prediction using the BERT classifier previously mentioned.
- **Video Analysis (Delivered to DayPop):** Co-leader of a 7-member project team developing video content analysis APIs. This project covers over 5 functionalities overall, including video summarization, tagging, NSFW, advertisement in-planting, etc. **(1) Progress management.** I am responsible for assigning tasks to each member, planning the sprint progress on Jira and organizing weekly meeting. **(2) Functionality design.** Together with the other project lead, we broke down the requirements into several sub-modules as is introduced, and determined the basic pathway to approach it. **(3) Technical support on implementation and delivery.** The video team has strong research background but is in lack of project experience. I support the members to use git, docker and many other tools for standard delivery and version control process.
- **English-Arabic Neural Machine Translation (Delivered to ToTok as Beta):** Around 45M pairs of En-Ar sentences are collected to train our own NMT model. Arabic tokenization is done with Moses, followed by standard BPE sub-word tokenization. The model is basically transformer-like, with 6-layered encoder and decoder. Relative attention is employed in En-Ar model. We reached around 42% in BLEU score on XNLI for Ar-En, with ~30% for En-Ar. This version is currently tested and used by ToTok, a popular messaging app in the MENA area. The project is initially finished within 2 months, and is under continuous improvement current.

Abu Dhabi, UAE

Nov. 2018 - Jun. 2020

Industrial and Commercial Bank of China (ICBC)

SOFTWARE ENGINEER

- UI and web page implementation for a report customization system with different credit products using JavaScript, Html and Java.
- Back-end database developing for data filtering using PL/SQL on an Oracle Exadata server.
- Version control with ClearCase. Software deployment to the data centre for monthly updates.
- Occasionally held the post of functional testing manager, planning testing milestones, allocating testing tasks to the group members and organizing periodic progress meetings.

Shanghai, China

Aug. 2013 - Dec. 2014

Skills

Programming	Python (especially with TensorFlow), Matlab, LaTeX, PL/SQL, Java
Machine Learning	GAN, VAE, Generative Flow, Auto-Regressive Model, Variational Information Bottleneck, Transformer, CNN, RNN
Project Management	Jira, Git, Confluence
Others	Fluent Spoken English, Professional Writing

Professional Experience

Public Talks and Presentations

- Spotlight talks at ICRA, BMVC and CVPR
- BMVA one-day meeting keynote presentation: Feature Learning from RGB-D Data

Reviewing

- Regular reviewer of TPAMI, IJCV, TITS, PRL, CVPR, ICCV, ECCV, AAAI, CCCV and BMVC

Awards

- BMVC2017 best poster paper honourable mention

Publications

- **Yuming Shen**, Jie Qin, Lei Huang, Li Liu, Fan Zhu and Ling Shao. Invertible zero-shot recognition flows. In *European Conference on Computer Vision (ECCV)*, 2020
- Jiaxin Chen, Jie Qin, **Yuming Shen**, Li Liu, Fan Zhu, L Shao. Learning attentive and hierarchical representations for 3d shape recognition. In *European Conference on Computer Vision (ECCV)*, 2020
- Weiwei Wang*, **Yuming Shen***, Haofeng Zhang and Li Liu. Semantic-rebased cross-modal hashing for scalable unsupervised text-visual retrieval. *Information Processing and Management*, <https://doi.org/10.1016/j.ipm.2020.102374>
- Weiwei Wang*, **Yuming Shen***, Haofeng Zhang, Yazhou Yao and Li Liu. Set and rebase: Determining the semantic graph connectivity for unsupervised cross modal hashing. In *International Joint Conference on Artificial Intelligence (IJCAI)*, 2020.
- **Yuming Shen**, Jie Qin, Jiaxin Chen, Mengyang Yu, Li Liu, Fan Zhu, Fumin Shen, and Ling Shao. Auto-encoding twin-bottleneck hashing. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020
- **Yuming Shen**, Jie Qin, Jiaxin Chen, Li Liu, Fan Zhu, and Ziyi Shen. Embarrassingly simple binary representation learning. In *IEEE International Conference on Computer Vision Workshops (ICCVW)*, 2019, (**Oral**)
- **Yuming Shen**, Li Liu, and Ling Shao. Unsupervised binary representation learning with deep variational networks. *International Journal of Computer Vision (IJCV)*, 127(11-12):1614–1628, 2019
- **Yuming Shen**, Li Liu, Fumin Shen, and Ling Shao. Zero-shot sketch-image hashing. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018, (**Spotlight**)
- Yang Long, Li Liu, **Yuming Shen**, and Ling Shao. Towards affordable semantic searching: Zero-shot retrieval via dominant attributes. In *AAAI Conference on Artificial Intelligence (AAAI)*, 2018
- **Yuming Shen**, Li Liu, Ling Shao, and Jingkuan Song. Deep binaries: Encoding semantic-rich cues for efficient textual-visual cross retrieval. In *IEEE International Conference on Computer Vision (ICCV)*, 2017
- **Yuming Shen**, Li Liu, and Ling Shao. Unsupervised deep generative hashing. In *British Machine Vision Conference (BMVC)*, 2017, (**Spotlight**)
- Li Liu, Fumin Shen, **Yuming Shen**, Xianglong Liu, and Ling Shao. Deep sketch hashing: Fast free-hand sketch-based image retrieval. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017, (**Spotlight**)
- **Yuming Shen**, Li Zhang, and Ling Shao. Semi-supervised vision-language mapping via variational learning. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2017
- **Yuming Shen**. Deep Binary Representation Learning for Single/Cross-Modal Data Retrieval. PhD thesis, *University of East Anglia*, 2018
- **Yuming Shen et al.** Enhancing feature discrimination via a generic auxiliary distribution for unsupervised domain adaptation. *Under Review*, 2020

Patents

- **Yuming Shen**, Li Liu, Fumin Shen, and Ling Shao. Zero-shot sketch-based image retrieval techniques using neural networks for sketch-image recognition and retrieval, Apr. 2 2019. US Patent 10,248,664

References

Available upon requests