TAO SUN

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EDUCATION

Ohio University, OH   *September 2016 - Present*
Ph.D. in Computer Science
Advisor: Jundong Liu

Huazhong University of Science and Technology, Wuhan, China *September 2002 - June 2005*
Master of Science in Engineering
Major: Physical Electronics

China Jiliang University, Hangzhou, China   *September 1998 - June 2002*
Bachelor of Science in Engineering
Major: Optoelectronics

PROJECTS

Deep Learning based Solutions for Speech Enhancement
In this project, deep learning solutions are introduced to solve the speech enhancement problems in the time domain. We explored dilation operations and apply them to fully convolutional networks (FCNs) to capture long context and extract multi-scale patterns. Currently, we strive to combine the mapping functionality of FCN and sequential processing capability of RNN to achieve high-quality speech enhancement results.

Semantic Segmentation with Capsule Networks
A capsule-based neural network model to solve the semantic segmentation problem was proposed in the project. By taking advantage of the extractable part-whole dependencies available in capsule layers, we derive the probabilities of the class labels for individual capsules through a recursive, layer-by-layer procedure. With the procedure, image-level class labels and object boundaries are jointly sought in an explicit manner, which poses a significant advantage over the state-of-the-art fully convolutional network (FCN) solutions.

PUBLICATIONS

Gong, S., Wang, Z., Sun, T., Zhang, Y., Smith, C. D., Xu, L., & Liu, J. (2019). Dilated FCN: Listening Longer to Hear Better. arXiv preprint arXiv:1907.11956.

Sun, T., Wang, Z., Smith, C. D., & Liu, J. (2019). Trace-back Along Capsules and Its Application on Semantic Segmentation. arXiv preprint arXiv:1901.02920.

Chen, Y., Shi, B., Wang, Z., Sun, T., Smith, C. D., & Liu, J. (2017, September). Accurate and consistent hippocampus segmentation through convolutional LSTM and view ensemble. In International Workshop on Machine Learning in Medical Imaging (pp. 88-96). Springer, Cham.

Sun, T., Zhu, D., Yang, Z., Liu, Z., & Liu, Y. (2006). Theoretical predictions of photonic properties of nanoporous copolymer films as photonic band gap materials using FDTD. Applied Physics B, 82(1), 89-92.

HONORS AND AWARDS

WORK EXPERIENCE

SAS Institute, Beijing, China   April 2015 - July 2015
Technical Lead

The role is to lead a team developing and maintaining SAS BI Dashboard.

SAS Institute, Beijing, China   September 2013 - March 2015
Front-end Developer

Form Control, a major HTML5 component in SAS, is designed to collect user-input values. Based on a data model, it generates various UI controls and organizes them into hierarchical forms.

Strengths and achievements:

- Overall object-oriented design of Form Control to meet the requirements, in the meantime considering the extension to Property Sheet, another major SAS HTML5 component.

- Designed and implemented fundamental features of Form Control, including but not limited to responsive web solution, data model and binding and transparent group.

- Fixed most of obstructive bugs.

- Developed other miscellaneous HTML5 components.

The essential supports I provided were crucial to its successful releases. And I was also promoted to a lead position due to my significant contributions to it.

SAS Institute, Beijing, China   September 2011 - March 2013
Full-stack Developer

Business Intelligence (BI) Group was responsible for the plugin development of SAS Environment Manager (EV) and SAS Visual Data Builder (VDB).

Strengths and achievements:

- Solved a long blocking bug of Data Spreadsheet, with that safe guarded File Importer project for the team and then winning the 3C (Collaboration, Communication and Consistency) Award of SAS 2012.

- Set up the prototype of File Importer and led the development of it technically.

- To fix some long-standing bugs, rewrote library plugin of EV.

Beijing and Guangzhou, China   September 2005 - August 2011
Team Lead and Softwar Engineer, 9Spaces Inc.

I was focusing on an outsourcing project, whose owner was one of 9Spaces strategic partners from May 2008 to August 2011.

My responsibilities included designing and implementing applications, collaborating with remote team members to ensure on-time release of high-quality code and project deliverables.

From September 2005 to May 2008, I participated each phase of design and development of 9Spaces.com. In the second half of 2007, I started to lead a team working on payscale.cn, Chinese version of famous salary survey website payscale.com.

TECHNICAL SKILLS

[Machine Learning and Deep Learning]

- Tensorflow, PyTorch
- NumPy, SciPy

[Programming]

- Python
- Java (Java EE, Spring, Lucene, GWT, Heritrix, IBatis etc)
- Javascript (JQuery, Dojo, OpenUI5)
- Actionscript (Flex)

[Software Engineering]

- Object-oriented Analysis and Design (OOAD)
- Project management and agile development (Scrum)