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PEIHONG ZHU

DOMAIN EXPERIENCE Database management, data analysis, machine learning, pattern recognition, data mining, imaging and computer vision.

EDUCATION

M.S. in Computer Science — 2008 – 2012
School of Computing, University of Utah

M.S. in Electronic Engineering — 2001 – 2004
University of Wuhan, Wuhan, Hubei, China

B.S. in Electronic Engineering — 1997 – 2001
Wuhan University of Technology, Wuhan, Hubei, China

TECHNICAL SKILLS C/C++, Python, Perl, SQL/MySQL, GPU (CUDA), Linux shell scripts, Java, Matlab.

EMPLOYMENT

Research Associate — 2012 – present
Atmospheric Sciences Department, University of Utah
Working with Dr. John Horel on weather and climate data processes.

Research Assistant — 2008 – 2012
Scientific Computing and Imaging Institute, University of Utah
Worked with Dr. Ross Whitaker on medical image analysis.

Software Engineer — 2004 – 2007
Lucent Technologies, Nanjing, China

PROJECTS

MesoWest: Web API for weather data services — 2012 – present

- Designed and developed an open-source web API using cloud servers to provide access and analysis to real-time and historical weather data from up to 40,000 publicly available weather stations, dating back to 1997.

Oil/gas reservoirs detection, funded by ExxonMobil — 2008 – 2010

- Developed a seismic faults and channels detection system for finding potential oil and gas reservoirs with C++ and CUDA. This system uses a window-based PCA on a feature domain to learn the patterns of the massive periodical seismic layers and the regions with complicated seismic structures such as faults/channels, and to segment those structures according to their unique patterns.

Brain MRIs shape analysis and modeling — 2010 – 2012

- Built a hierarchical feature matching software using Spatial Pyramid Matching for analyzing brain MRI images. This work is based on my 2011 MICCAI paper and was written in C++/Matlab.

Status Display Page, Lucent ECP OAM team — 2004 – 2007

- SDP collects status of network elements in Lucent FLEXENT/AUTOPLEX system and shows on displaying devices, which allows technicians to monitor real time status of elements and to detect unit faults. It is written in C/C++. I was responsible for the development and deployment of this Lucent product.

AWARDS Best paper award: How Many Templates Does it Take for a Good Segmentation? – Error Analysis in Multi-atlas Segmentation as a Function of Database Size, 2012 MICCAI (Medical Image Computing and Computer Assisted Intervention) workshop. (Joint work with

Suyash Awate and Ross Whitaker.)

PATENTS

- A hierarchical subsurface structures detection system for seismic data: Attorney Docket No. 2013EM041, and Serial No. 61/764811. (Joint work with ExxonMobil Upstream Research Company.)
- A web-based management framework for network performance monitoring, active queue management and fault detection, was patented as a computer software copyright, Certificate No.2004SR02118 (`www.ccopyright.com.cn`).

SELECTED PUBLICATIONS

- Peihong Zhu, Suyash P. Awate, Samual Gerber, Ross Whitaker. Fast Shape-Based Nearest-Neighbor Search for Brain MRIs Using Hierarchical Feature Matching, *MICCAI*, vol. 6892, pp. 484 - 491, 2011.
- Pascal Grosset, Peihong Zhu, Shusen Liu, Suresh Venkatasubramanian, Mary W. Hall. Evaluating graph coloring on GPUs. *PPOPP 2011*: 297 – 298
- Wei Liu, Peihong Zhu, Jeffrey S. Anderson, Deborah Yurgelun-Todd, P. Thomas Fletcher, Spatial Regularization of Functional Connectivity Using High-Dimensional Markov Random Fields, *MICCAI*, pages 363 – 370, 2010.
- Peihong Zhu, Chengcheng Guo, Puliu Yan, An Algorithm for Physical Topology Discovery in Heterogeneous Switching Networks, P87, P89 and P92, *Computer Application*, Vol.23, No.8, 2003.