
JIANYI (JARVIS) DU

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Key Skills

- Programming (C/C++, Python, Lua, MATLAB, Linux)
- Image Processing
- PIC Microchip
- System Modeling
- Functional Printing
- Violin

Researching Experience

Mars Rover's Wheel Control Based on Reinforcement Learning
(Part of "National Natural Science Foundation of China" project, F030601)
with Prof. Qixin Cao, Fall 2013 Summer 2014

Fabrication Simulation for Micro EDM Process
(Part of "National Natural Science Foundation of China" project, E050902)
with Prof. Jingyu Pei, Spring 2014 present

Application of Deep Neural Network
with Prof. Eugenio Culurciello, Fall 2014 present

Inkjet Printing/Direct Writing System Design
with Prof. Rebecca Kramer, Winter 2014 present

Publications

Lenan Zhang , **Jianyi Du** , Xiaoshun Zhuang , Zhiliang Wang , Jingyu Pei, "Geometric prediction of conic tool in micro-EDM milling with fix-length compensation using simulation", *International Journal of Machine Tools and Manufacture*, February 2015

Education Experience

Mechanical Engineering *Fall 2012 Summer 2014*
Shanghai Jiao Tong University - Shanghai, China.

Mechanical Engineering *Summer 2014 present*
Purdue University - West Lafayette, IN, The United States.
Expected graduation in Summer 2016

Responsibilities

President of "Chun-Tsung Endowment" Undergraduate Research Internship
Students' Committee *Fall 2013 Summer 2014*

- Daily management: Budget / Activity planning / Project execution
- Team building: Member recruiting / Team developing
- Branding: Advertisement / Sponsors

Volunteering *Fall 2012 present*

- 2013 Shanghai International Marathon
- Community volunteer in Kiwanis Circle K

"Have the courage to follow your heart and intuition. They somehow already know what you truly want to become. Everything else is secondary."
--- Steve Jobs

Appendix: Detailed Research Experience

1. Mars Rover's Wheel Control Based on Reinforcement Learning with Prof. Qixin Cao (Part of "National Natural Science Foundation of China" project, F030601)

I joined the team at the beginning of sophomore, when I learned a lot in control, machine learning and servo programming. I designed a new set of strategic methods based on reinforcement learning to help stabilize the slip ratio. The results show that the number can be controlled within 10%. I also tested it on the platform built by my own, and it works well, but may need some further revision. I focused on only one wheel, for there was no time for me for cooperative movement of all six wheels before I came to the United States.

2. Simulation for A Specific Manufacturing Process (Micro EDM Process) with Prof. Jingyu Pei (Part of "National Natural Science Foundation of China" project, E050902)

I joined the team late in spring 2014, and took responsibility for all the programming work with MATLAB. The simulation and theoretical analysis show high correspondence. In summer 2014, we made an upgraded 3-D version of the simulation with some more complicating algorithms and it is experimented to verify the accuracy. In winter 2014, the model is upgraded considering electric field, and it is still under further experiment. A paper "Geometric prediction of conic tool in micro-EDM milling with fix-length compensation using simulation" has already been published on International Journal of Machine Tools and Manufacture in November 2014.

3. Neural Network for Object Identification at Purdue e-Lab with Prof. Eugenio Culurciello

I joined the team at the beginning of fall 2014. Currently I am helping with the facial image capture. It is mostly programming involved.

4. Material Printing Software at Purdue Faboratory with Prof. Rebecca Kramer

I am currently responsible for the beta version of printing software. It is based on the alpha version but a lot of new features are added to provide better printing performance and user interaction. I am also working on the contact angle measurer involving image processing, as well as direct writing printing module.

