BO YANG

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SUMMARY

- **To obtain full time position working as a Software Engineer start summer 2019**

Self-motivated and highly talented Ph.D. Candidate, strong background in Programming, Data Analysis, Machine/Deep Learning, and Image Processing. Great communication skills and abundant teamwork experience.

EDUCATION & SELECTED AWARDS

University of California, Berkeley   8/2013-now

Ph.D. (2015-2019) and M.S. (2013-2015) in Mechanical Engineering   **GPA: 3.96/4.0**

The J. K. Zee Fellowship (2015), Signatures Innovation Fellows (2017-2018), SB3C Ph.D. paper COMP finalist (2017).

Dalian University of Technology   9/2009-6/2013

B.S. in Naval Architecture and Ocean Engineering   **GPA: 4.0/4.0**

WORKING EXPERIENCE

- *Internship at TianMing Data Science Technology*   **2017 Winter**
    – Developed deep convolutional neural network (CNN), including resnet and densenet, to conduct pneumoconiosis diagnosis using chest x-ray images. Related skils included artificial intelligence (AI) and distributed algorithm.
    – Developed Python classes and scripts for medical image analysis.
    – Developed algorithms for data augmentation and label quality check.
    – Developed deep CNN models using mxnet and gluon and deploy them for inference (80%+ accuracy).
- *Graduate Student Instructor (GSI) 5 times at UC Berkeley*   **2013-2018**
    –Including one semester **Lead GSI** of a 260-student MATLAB programming class (Engineering 7).
    –**Lead 6 other GSIs** to prepare and grade homeworks and exams, give lab sessions, and hold office hours.

RESEARCH AND PROJECTS

- *Implementation of a Database in Java*   **Spring 2018**
    – Implemented persistent B+ trees that mapped keys to records.
    – Implemented table, page, and record iterators.
    – Implemented join algorithms over tables including Page/Block Nested Loop Join, and Sort Merge Join.
    – Cost estimation, maintenance of statistics, and query optimization using System R dynamic programming
    – Developed a Lock Manager to implement table and page-level locking
- *Application of CNN to Medical Image Detection and Segmentation (https://youtu.be/U7yk9PYwnA4)*   **2017**
    – Obtained 1082 slices of 256×256-resolution MRI scans of bovine intervertebral disc (Bruker 7T).
    – Preprocessed images: rotated and transposed images to enlarge total data amount, and labeled each pixel.
    – Improved image classification and segmentation task accuracy drastically to 97%.
- *Parallelized transformation from 3D Matrix to Voxel Mesh*   **2017**
    – Developed an algorithm in C++ that was $O(n)$ complexity.
    – Paralleled C++ code using Cuda GPU.
    – Paralleled C++ code using MPI IO (6 × speed up).

SELECTED PUBLICATIONS

Yang, B. and OConnell, G.D., 2018. Swelling Behavior of Fiber-Reinforced Soft Tissues is Affected by Fiber Orientation, Fiber Stiffness, and Lamella Structure. Journal of the Mechanical Behavior of Biomedical Materials.

Yang, B. and OConnell, G.D., 2017. Effect of collagen fibre orientation on intervertebral disc torsion mechanics. Biomechanics and modeling in mechanobiology. 16(6):2005-15.

Yang B, Lu Y, Um C, OConnell GD. Nucleotomy Increases Disc Bending Stiffness under Complex Loading Modalities. Abstract for **Ph.D. Paper Competition** World Congress of Biomechanics Meeting, Dublin, Ireland, 07/2018.

SKILLS

Proficient in Java, Python, SQL, MATLAB.   Knowledgeable in HTML/CSS.

SELECTED COURSES

CS 61B Data Structure (A+)   CS 286A Introduction to Database System (A)

CS 267 Applications of Parallel Computers (A)   CS 294-131 Deep learning Special Topics: Deep Learning (Pass)

CS 289A Introduction to Machine Learning (Pass)   EE 128 Feedback Control System (A+)