

Bo Cao

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PERSONAL PROFILE

Applying **Deep Learning & Computer Vision** to **Human-Robot Interaction** in IronLab, CU-Boulder
Research Intern in Ericsson

EDUCATION

University of Colorado Boulder, Boulder, Colorado Expected Graduate in 05/2018
M.S. Computer Science **GPA: 3.875/4.0**
●Neural Networks and Deep Learning ●Big Data Architecture ●Advanced Robotics
●User-Centered Design & Development 1 ●Computer Perception ●Human-Robot Interaction
●Object-Oriented Analysis & Design ●Swarm Intelligence

The University of Sheffield, Sheffield, United Kingdom 09/2012-09/2013
MSc Software Systems and Internet Technology
●Web Technologies ●Advanced Java Programming
●Java E-Commerce ●Network and Internetwork Architectures

Guangdong University of Technology, GuangZhou, China 09/2007-06/2011
B.Eng.Computer Science and Technology
●Data Structure ●Computer Networks ●Operating Systems ●Software Engineering

TECHNICAL SKILLS

Languages: **Java, Python, JavaScript, C++**
Frameworks: **Node.js, TensorFlow, jQuery, Spring & Hibernate**
Methodologies: **OOP, UML, Design Pattern & MVC**
Others: **OpenCV, ROS, Hadoop, Spark, Kafka, Docker, NoSQL, MySQL, MongoDB, UI UX**

WORK EXPERIENCE

Research Intern Ericsson Silicon Valley, Santa Clara, California 05/2017-08/2017
●Developed an application of **Collaboration on Augmented Reality** using **HoloJS, Node.js, WebGL, JavaScript** and **C++**.
Research work has been submitted to **CHI 2018 Late Breaking Work**
www.ericsson.com/research-blog/collaboration-augmented-reality-summer-labs/

Project Research Assistant 02/2016-05/2017 **Lab Network Systems Administrator** 08/2016-05/2017
Laboratory for Interactive Robotics & Novel Technologies (IronLab), University of Colorado Boulder
www.colorado.edu/atlas/bryan-bo-cao
●Working on my own research on **Human-Robot Interaction** using **Deep Learning**.
●Designed the research of recognizing gestures from **RGB-D camera** and **Myo Armband** to control various forms of robots, conducted experiments and built a repository to classify gesture.

Test Engineer IBM International System Technology Co. Ltd (ISTC), Shenzhen China 05/2014-11/2014
●Tested **System X** servers by **test code** run on **Linux**;
●**Front-end** co-designer of **Redfish** Project for **report auto-generation** using **web.py**.

Grader of Course CSCI 5839 User Centered Design & 08/2017- 12/2017
CSCI 3002 - Human-Centered Computing Foundations

Graduate Mentor for Spring Break 03/2016&03/2017&03/2018
Mentored student Sousheel Vunnam in IronLab(2017), Juan Vargas-murillo in Correll Lab(2016), University of Colorado Boulder

PROJECTS & ACTIVITIES

CSCI 6950-935 Master's Thesis 08/2016-Present
●GoNet: Intuitive Proximal Robot Navigation from Kinect and Myo Armband using **Parallel R-CNN (Deep Learning & Human-Robot Interaction)**
Collected data in **RGB-D images** and **videos** for robot navigation by **KinectV2 & Myo Armband**.
Parallel **Region-Based Recurrent Convolutional Neural Networks** using **TensorFlow & Python** to classify gestures.
To be submitted to **RSS(Robotics: Science and Systems) 2018** conference.

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CSCI 5922 Neural Networks and Deep Learning

08/2017-12/2017

- Art Images and Human Judgment Accuracy - Neural Networks to judge art image
Implemented **autoencoder** extract **image feature** from art images using **TensorFlow & Python**.
github.com/BryanBo-Cao/neuralnets-deeplearning

ATLS 5214 Big Data Architecture

01/2017-05/2017

- GreenArrow - An interactive map visualizing crime data using **JavaScript, Java, AWS, MongoDB, Kafka, Bootstrap, Spark, Node.js, Google Maps APIs, JSON & Twitter API**
github.com/CUBigDataClass/IceStream

CSCI 5839-001 User-Centered Design & Development 1

08/2016-12/2016

- FeelCam. Prototyped a camera by detecting users' intentions by gestures, facial expressions or voice command.
(A/B Prototype, Usability Testing, Heuristic Evaluation)

CSCI 5448 Object-Oriented Analysis & Design

02/2016-05/2016

- Developed a website for users to train robot on path learning using **Java, MVC, URL, Design Pattern, Bootstrap, Spring, Hibernate, JavaScript, JSON, MySQL**
github.com/BryanBo-Cao/CSCI5448-RobotPathLearning-Team13

CSCI 5900 Integration of Autonomous Robotics Car

08/2015-12/2015

- Integrated an Autonomous Robotics Car with Jaguar and Stewart platform, controlled and communicated via **ROS (Robots Operating System)**, constructed environment via **SLAM**, sensors included **stereo camera, IMU(Inertial Measurement Unit)** and **Lidar**.
youtu.be/Tb0sU9bNYIY

Web Based Holiday System for the Medical School Postgraduate

09/2012-05/2013

- Developed a system to replace the paper-based holiday application process using **HTML, CSS, JS, Bootstrap, PHP, MySQL**, on **WAMP(Windows Apache MySQL & PHP)**.
bryan55.com/HolidaySystem

A Search Engine for Gathering Information from Social Media

03/2012-05/2013

- Developed a system to gather latest tweets for searching using like location, content, username or a combination of any of them, using **HTML, CSS, JS, Bootstrap, JSP, Servlet, Java, Twitter4J & MySQL**.

PAPERS

Designing AR for collaborations in Distant Teacher-Learner Experiences

submitted to CHI 2018 Late Breaking Work 01/2018

GoNet: Intuitive Proximal Robot Navigation from Kinect and Myo Armband using Parallel R-CNN

to be submitted to RSS 2018, 02/2018

YOPO: You Only Point Once - Intuitive Proximal Robot Real-Time 2D Navigation from Global RGB-D Camera using R-CNN with Optical Flow

to be submitted to ECCV 2018, 03/2018

AWARDS

Beverly Sears Graduate Student Grant award for Master Dissertation from **CU-Boulder**

03/2017

First Class Scholarships for academic excellence (top 3%) Bachelor degree study

09/2009-06/2010

Second Class Scholarships for students' All-round development (top 8%) Bachelor degree study

09/2009-06/2010

LEARNING

deeplearning.ai in Coursera:

Neural Networks and Deep Learning

01/2017

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization

01/2017

Structuring Machine Learning Projects

01/2017

Convolutional Neural Networks

01/2017

VOLUNTEERS

Student Volunteer in **CHI Conference** in Denver, CO, USA

05/2017

Volunteer in **Silicon Valley Future Forum** in Santa Clara, CA, USA

07/2017