Canchen Li

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Education Background

Zhejiang University Chu Kochen Honors College   Sep. 2016 - Jun. 2021

Bachelor - Computer Science and Technology (major), Statistics (minor)

- GPA: 3.63 / 4.00, third scholarship for outstanding students and third scholarship for outstanding merit on 2018
- Relevant courses: Mathematical Analysis, Linear Algebra, Probability Theory, Mathematical Statistics, Discrete Mathematics, Numerical Analysis, Fundamentals of Data Structure, Database Systems, Advanced Data Structure & Algorithm Analysis, Object-Oriented Programming, Computer Organization, Operating System, Advanced Practices on Big Data Applications, Computational Complexity, Convex Optimization, Artificial Intelligence

Technical University of Munich Department of Informatics   Apr. 2019 - Sep. 2019

Exchange Program - Informatics

- GPA: 1.40 / 5.00 (German 5-point grading: 1.0 highest, 5.0 lowest)
- Relevant courses: Machine Learning and Natural Language Processing for Opinion Mining (1.0), Seminar Data Mining (1.3), Compiler Construction (2.3)

Professional Experience

Amazon Supply Chain Optimization Technologies   Jun. 2020 - Sep. 2020

Software Development Engineer Intern, Direct Fulfillment Team

- Developed and launched the shipping capacity control feature for direct fulfillment warehouses as a full-stack engineer
- Conducted ship method allocation replay for direct fulfillment warehouse shipments, modeled and analyzed data to discover the impact of fulfillment network capacity settings on the cost and accuracy by using Amazon Redshift and JupyterLab

Massachusetts Institute of Technology Langer Research Lab   Sep. 2019 - May. 2020

Visiting Student Researcher

- Computer vision based food carbohydrate estimation system for all-in-one insulin pen project
  - Trained and optimized the semantic segmentation model for food region recognition based on U-Net
  - Took the initiative of developing the client - server system that tackles data capture, food volume estimation, carbohydrate calculation and visualization
- Rapid face 3D scanning application with ARKit for face mask deformation study in autoclavable, scalable, conformable face mask project
- Facial temperature and respiration rate estimation system for contactless vital signs monitoring project, in collaboration with Boston Dynamics
  - Took ownership of investigating face detection algorithms applicable for detecting people with a mask in thermal images
  - Built a linear optimization based tracking algorithm for multi-subject tracking, calculation of facial temperature and respiration rate

Zhejiang University HappiLab   Oct. 2018 - Sep. 2019

Student Researcher, MindBand Tech (start-up company)

- Built and tested the music emotion extraction algorithm that maps audio signal to valence-arousal emotion space
- Implemented the VAG-GAN based auto composing neural network in PyTorch
- Developed the prototype application for demonstration

Technical University of Munich Department of Informatics   Apr. 2019 - Aug. 2019

Master Course Participant

- Derived the preprocessing pipeline for the dataset, including stemming, stop word removing, segmentation, and word embedding
- Evaluated sentence segmentation and elementary discourse unit segmentation influences in text sentiment classification with multi-instance learning

Zhejiang University State Key Lab of CAD & CG   May. 2017 - Sep. 2017

Research Assistant

- Investigated and analyzed the performance of estimation-maximization (EM) algorithm and FlowNet on single view optical flow estimation

Publications

- Huang, H.W.*, You, S.S.*, Tizio, L.D.*, **Li, C.***, Raftery, E., Ehmke, C., Steiger, C., Li, J., Wentworth, A., Liang, J., Li, J., Collins, J., Tamang, S., Ishida, K., Halperin, F., and Traverso, G. An all-in-one insulin pen: automated food carbohydrate counting, blood glucose measuring, and insulin delivery. Science Translational Medicine. (submitted, joint first author)
- Qiu, Z., Ren, Y., **Li, C.**, Liu, H., Huang, Y., Yang, Y., Wu, S., Zheng, H., Ji, J., Yu, J., and others 2019. Mind Band: a crossmedia AI music composing platform. In Proceedings of the 27th ACM International Conference on Multimedia (pp. 2231–2233).
- Byrne, J., Wentworth, A., Chai, P., Huang, H.W., Babaee, S., **Li, C.**, Becker, S., Tov, C., Min, S., and Traverso, G. 2020. Injection Molded Autoclavable, Scalable, Conformable (iMASC) system for aerosol-based protection: a prospective single-arm feasibility study. BMJ open, 10(7), p.e039120.
- Huang, H.W., Ehmke, C., Merewether, G., Dadabhoy, F., Feng, A., Thomas, A., **Li, C.**, Silva, M., Raibert, M., Boyer, E., and others 2020. Agile mobile robotic platform for contactless vital signs monitoring. TechRxiv.

Awards

- Gold Prize, China College Students' Internet + Innovation and Entrepreneurship Competition, Ministry of Education of PRC, 2018
- Third Prize, China Collegiate Computing Contest - Mobile Application Innovation Competition, Apple Inc. and Zhejiang University, 2018
- First Prize, Apple iOS Club Summer Camp, Apple Inc., 2018

Skills

- **Language**: Fluent English. TOEFL 106 (R: 27, L: 26, S: 26, W: 27), GRE 323 + 3.5 (V: 154, Q: 169, W: 3.5)
- **Programming Languages**: advanced: Python, Swift, C, Java; intermediate: Javascript, Scala, C++; beginner: R, Verilog, MATLAB
- **Technology Stack**: advanced: numpy, scikit-learn, TensorFlow, Keras, iOS development, SQL, Linux, LaTeX, git, vim; intermediate: Spring, mockito, Flask, jQuery, Redshift, DynamoDB, Amazon RDS, Hadoop, Spark, pthread; beginner: Flink, HBase, Kafka

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教育背景

浙江大学 竺可桢荣誉学院 2016 年 9 月 - 2021 年 6 月
本科 - 计算机科学与技术（主修），统计学（辅修）
- GPA：3.63 / 4.00，2018 获优秀学生三等奖学金，学业三等奖学金
- 主要课程：数学分析，线性代数，概率论，数理统计，离散数学，数值分析，数据结构基础，数据库系统，高级数据结构与算法分析，面向对象程序设计，计算机组成，操作系统，大数据应用强化训练，计算复杂性，凸优化，人工智能

慕尼黑工业大学 信息学院 2019 年 4 月 - 2019 年 9 月
学期交换项目 - 信息学
- GPA：1.40 / 5.00（德国 5 分制算法：1.0 最高，5.0 最低）
- 主要课程：研究生实践课 - 观点挖掘中的机器学习与自然语言处理，数据挖掘研讨，编译器构造

专业经历

亚马逊公司 供应链优化技术 2020 年 6 月 - 2020 年 9 月
软件开发实习生，Direct Fulfillment 小组
- 开发了用于管理直送仓库库存限制的后端服务与前端页面
- 进行了对直送仓库的历史运单送货方式分配模拟，分析数据以衡量物流网络中的流量控制设定准确度以及其对产生的运费影响

麻省理工学院 Langer 实验室 2019 年 9 月 - 2020 年 5 月
科研访问学生
- 为一个多合一胰岛素笔项目开发基于机器视觉的碳水化合物预测系统
  - 训练并优化了用于食物图像分割，基于 U-Net 的语义分割模型
  - 开发了包括数据获取，食物体积预测，碳水化合物计算以及结果可视化的客户端 - 服务端系统
- 为可重复利用面罩（iMASC）项目制作用于面部贴合度测试的，基于 ARKit 的快速面部扫描建模应用
- 为无接触生命体征探测项目开发面部温度及呼吸频率预测系统
  - 回顾及测试现有的面部识别算法，找出能够直接用于在热成像中检测戴口罩人脸的人脸识别模型
  - 开发了基于线性优化的目标追踪算法，用于对多目标进行实时面部温度及呼吸频率监测

浙江大学 科技设计创新创业实验室 2018 年 10 月 - 2019 年 9 月
科研助理，MindBand 创业团队成员
- 构建并测试用于将声音信号映射至 valence - arousal 情感空间的音乐情感提取算法
- 使用 PyTorch 实现了基于 VAE-GAN 的自动作曲模型
- 用于展示的 iOS 前端应用开发

慕尼黑工业大学 信息学部 2019 年 4 月 - 2019 年 8 月
研究生课程参与者
- 构建了用于数据基于处理的流水线，包括词干提取，停用词删除，分割以及词向量嵌入
- 复现并对比了不同的句子分割和 EDU 分割方法对于基于多实例学习的文本分类模型的影响

浙江大学 计算机辅助设计与图形学国家重点实验室 2017 年 5 月 - 2017 年 9 月
科研助理
- 复现并对比了基于 EM 算法和 FlowNet 算法的单目光流预测的性能表现

论文发表

- Huang, H.W., You, S.S.*, Tizio, L.D.*, **Li, C.**, Raftery, E., Ehmke, C., Steiger, C., Li, J., Wentworth, A., Liang, J., Li, J., Collins, J., Tamang, S., Ishida, K., Halperin, F., and Traverso, G. An all-in-one insulin pen: automated food carbohydrate counting, blood glucose measuring, and insulin delivery. Science Translational Medicine.（已投递，共同第一作者）
- Qiu, Z., Ren, Y., **Li, C.**, Liu, H., Huang, Y., Yang, Y., Wu, S., Zheng, H., Ji, J., Yu, J., and others 2019. Mind Band: a crossmedia AI music composing platform. In Proceedings of the 27th ACM International Conference on Multimedia (pp. 2231–2233).
- Byrne, J., Wentworth, A., Chai, P., Huang, H.W., Babaee, S., **Li, C.**, Becker, S., Tov, C., Min, S., and Traverso, G. 2020. Injection Molded Autoclavable, Scalable, Conformable (iMASC) system for aerosol-based protection: a prospective single-arm feasibility study. BMJ open, 10(7), p.e039120.
- Huang, H.W., Ehmke, C., Merewether, G., Dadabhoy, F., Feng, A., Thomas, A., **Li, C.**, Silva, M., Raibert, M., Boyer, E., and others 2020. Agile mobile robotic platform for contactless vital signs monitoring. TechRxiv.

所获奖项

2018 年 10 月	中国大学生互联网 + 大学生创新创业大赛 · 金奖 · 中华人民共和国教育部
2018 年 9 月	中国高校计算机大赛 - 移动应用创新赛 · 三等奖 · 浙江大学及 Apple 公司
2019 年 6 月	传播数据挖掘竞赛 · 三等奖 · 中国新闻史学会计算传播学研究委员会及新浪微热点大数据研究院
2018 年 8 月	Apple iOS Club 夏令营 · 一等奖 · Apple 公司

知识技能

- 语言：英语。TOEFL 106（阅读 27 听力 26 口语 26 写作 27），GRE 323 + 3.5（语文 154，数学 169，写作 3.5）
- 编程语言：Python，Swift，Java，C，Javascript，SQL
- 技术栈：软件开发，机器学习，数据分析，统计学，Linux，macOS