# 唐楚峰

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## 教育背景

### 清华大学 2018 年 9 月 – 至今

博士研究生 计算机科学与技术

- 导师：胡晓林副教授 （TSAIL 实验室：张钹院士及朱军教授带领）
- 研究兴趣：深度学习及其在计算机视觉中的应用，主要包括实例级的物体检测与分割、标签高效学习、语言辅助的视觉识别等；此外，还包括脑启发的视觉感知模型设计，以及基于深度学习和计算机视觉技术的脑科学探索。

### 华中科技大学 2014 年 9 月 – 2018 年 6 月

工学学士 计算机科学与技术

- 绩点：3.97 / 4.0 排名：4 / 260 优秀毕业生
- 毕业论文：基于多任务学习的属性识别（优秀本科毕业论文）

## 实习经历

### 华为云计算 2020 年 9 月 – 至今

计算机视觉算法实习生

- 导师：田奇教授、谢凌曦博士
- 研究课题：物体检测与分割、标签高效学习、语言辅助的视觉识别等
- 工作内容：围绕华为云计算平台的企业智能业务和计算机视觉领域前沿开展相关算法的预研工作，包括对物体检测和分割任务中的标注代价高、识别粒度受限、可扩展性差等问题进行研究，发表高水平论文并申请专利（一篇 ECCV 2022 顶会论文，一篇 CVPR 2023 顶会论文，一项在审专利）。

### 商汤科技 2017 年 8 月 – 2018 年 7 月

见习计算机视觉研究员

- 导师：邵婧博士
- 研究课题：行人和人脸属性识别、智慧安防系统、多任务学习、持续学习等
- 工作内容：围绕智慧安防和视频监控等业务需求进行相关计算机视觉算法的研发和迭代，主要包括视频监控场景下的行人和人脸属性识别等问题，结合多标签/多任务学习、持续学习、注意力机制等前沿技术持续提升识别精度和识别效率（产出一篇 ICCV 2019 顶会论文，一项已授权专利）。

## 论文发表

1. Improving Pedestrian Attribute Recognition with Weakly-Supervised Attribute-Specific Localization
   **Chufeng Tang**, Lu Sheng, Zhaoxiang Zhang, Xiaolin Hu†
   *IEEE/CVF International Conference on Computer Vision **(ICCV)***, 2019
2. Look Closer to Segment Better: Boundary Patch Refinement for Instance Segmentation
   **Chufeng Tang**, Hang Chen, Xiao Li, Jianmin Li, Zhaoxiang Zhang, Xiaolin Hu†
   *IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)***, 2021
3. Active Pointly-Supervised Instance Segmentation
   **Chufeng Tang**, Lingxi Xie, Gang Zhang, Xiaopeng Zhang, Qi Tian†, Xiaolin Hu†
   *European Conference on Computer Vision **(ECCV)***, 2022
4. Improving Image Segmentation with Boundary Patch Refinement
   Xiaolin Hu†, **Chufeng Tang** (学生一作), Hang Chen, Xiao Li, Jianmin Li, Zhaoxiang Zhang
   *International Journal of Computer Vision **(IJCV)***, 2022

5. Visual Recognition by Request
   **Chufeng Tang**, Lingxi Xie, Xiaopeng Zhang, Xiaolin Hu, Qi Tian
   *IEEE/CVF Conference on Computer Vision and Pattern Recognition **(CVPR)***, 2023
6. Dense Contrastive Loss for Instance Segmentation
   Hang Chen, **Chufeng Tang**, Xiaolin Hu
   *British Machine Vision Conference **(BMVC)***, 2022
7. Learning Efficient DETRs via Query-Guided Knowledge Distillation
   Hang Chen, **Chufeng Tang**, Xiaolin Hu
   *In Submission*, 2022
8. Focal Distillation from High-Resolution Data to Low-Resolution Data for 3D Object Detection
   Jiawei Shan, Gang Zhang, **Chufeng Tang**, Hujie Pan, Qiankun Yu, Guanhao Wu, Xiaolin Hu
   *In Submission*, 2022

## 项目经历

### 基于深度学习的大规模神经元形态重建 2021 年 6 月 – 至今

算法方向主要负责人

- 启元实验室类生智能重点研发项目、清华大学国强研究院通用探索项目
- 成像及数据方向合作导师：时松海教授、郭增才副教授
- 项目内容及目标：从光学显微成像中重建数以万计的神经元形态和结构；基于深度学习和计算机视觉技术构建自动或半自动的神经元重建算法，提升重建过程的效率和精度。
- 核心技术问题：三维成像数据中神经元信号的定位和分割、基于分割结果的神经元信号追踪和形态重建；面临数据规模庞大、信号高度稀疏、标注困难、数据不对齐、信号不连续等问题。

## 荣誉和奖励

综合优秀奖学金，清华大学 2022 年
优秀本科毕业论文，华中科技大学 2018 年
优秀毕业生，华中科技大学 2018 年
国家奖学金，教育部 2017 年
优秀大学生奖，中国计算机学会 2017 年
金奖，中国计算机学会大学生计算机系统与程序设计竞赛 (CCF-CCSP) 2017 年
铜奖，国际大学生程序设计竞赛亚洲区域赛 (ACM-ICPC) 2016 年
国家励志奖学金，教育部 2016 年
铜奖，国际大学生程序设计竞赛亚洲区域赛 (ACM-ICPC) 2015 年
三好学生奖学金，华中科技大学 2015 年

## 助教经历

神经与认知计算（主讲：胡晓林老师） 2020 年秋季
深度学习（主讲：胡晓林老师、朱军老师） 2020 年春季
深度学习导论（主讲：胡晓林老师） 2019 年秋季
清华大学深度学习暑期学校 2019 年夏季
深度学习导论（主讲：胡晓林老师） 2018 年秋季

## 编程技能

- 编程语言：Python, C/C++ 等
- 深度学习框架：PyTorch, Caffe 等
- 开发平台：macOS, Linux, Windows 等

# Chufeng **Tang**

Ph.D. Student · Tsinghua University

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## Education

**Tsinghua University (THU)** — *Beijing, China*

Ph.D. Student Department of Computer Science and Technology — *2018/09 – 2023/06 (Expected)*

- Advisor: Prof. Xiaolin Hu
- TSAIL Group (directed by Prof. Bo Zhang and Prof. Jun Zhu)
- Research interests: deep learning and computer vision, especially on instance-level detection/segmentation, label-efficient learning, language-driven visual recognition, AI for (biomedical) science, brain-inspired AI, etc.

**Huazhong University of Science and Technology (HUST)** — *Wuhan, China*

B.Eng. School of Computer Science and Technology — *2014/09 – 2018/06*

- GPA: 3.97/4.0 Grade: 90.4/100 Rank: 4/260
- Thesis: Attribute Recognition with Multi-task Learning (Outstanding Bachelor Thesis)

## Experience

**Huawei Technologies Co., Ltd.** — *Beijing, China*

Research Intern — *2020/09 - Present*

- Advisor: Prof. Qi Tian and Dr. Lingxi Xie
- Research topics: detection/segmentation, language-driven visual recognition, label-efficient learning, etc.

**SenseTime Group Inc.** — *Beijing, China*

Research Intern — *2017/08 - 2018/07*

- Advisor: Dr. Jing Shao
- Research topics: pedestrian attribute recognition, intelligent surveillance, multi-task learning, continual learning, etc.

**Tsinghua University** — *Beijing, China*

Teaching Assistant — *2018, 2019, 2020*

- 2018 Fall. **Introduction to Deep Learning** (THU-00240332), instructed by Prof. Xiaolin Hu
- 2019 Summer. **Tsinghua University Deep Learning 2019 Summer School**
- 2019 Fall. **Introduction to Deep Learning** (THU-00240332), instructed by Prof. Xiaolin Hu
- 2020 Spring. **Deep Learning** (THU-80240743), instructed by Prof. Xiaolin Hu and Prof. Jun Zhu
- 2020 Fall. **Neural and Cognitive Computation** (THU-80240642), instructed by Prof. Xiaolin Hu

## Publications

**Improving Pedestrian Attribute Recognition With Weakly-Supervised Multi-Scale Attribute-Specific Localization** — *ICCV 2019*

**Chufeng Tang**, Lu Sheng, Zhaoxiang Zhang, Xiaolin Hu† — *Seoul, Korea*

**Look Closer to Segment Better: Boundary Patch Refinement for Instance Segmentation** — *CVPR 2021*

**Chufeng Tang***, Hang Chen*, Xiao Li, Jianmin Li, Zhaoxiang Zhang, Xiaolin Hu† — *VIRTUAL*

**Active Pointly-Supervised Instance Segmentation** — *ECCV 2022*

**Chufeng Tang**, Lingxi Xie, Gang Zhang, Xiaopeng Zhang, Qi Tian†, Xiaolin Hu† — *Tel Aviv, Israel*

**Improving Image Segmentation with Boundary Patch Refinement** — *IJCV 2022*

Xiaolin Hu†, **Chufeng Tang**, Hang Chen, Xiao Li, Jianmin Li, Zhaoxiang Zhang — *(Impact Factor: 13.37)*

(Chufeng Tang is the **first student author** except the supervisor)

**Visual Recognition by Request** — *CVPR 2023*

**Chufeng Tang**, Lingxi Xie, Xiaopeng Zhang, Xiaolin Hu, Qi Tian — *Vancouver, Canada*

**Dense Contrastive Loss for Instance Segmentation** — *BMVC 2022*

Hang Chen, **Chufeng Tang**, Xiaolin Hu — *London, UK*

**Learning Efficient DETRs via Query-Guided Knowledge Distillation** — *Under Review (2022)*

Hang Chen, **Chufeng Tang**, Xiaolin Hu

**Focal Distillation from High-Resolution Data to Low-Resolution Data for 3D Object Detection** — *Under Review (2022)*

Jiawei Shan, Gang Zhang, **Chufeng Tang**, Hujie Pan, Qiankun Yu, Guanhao Wu, Xiaolin Hu

## Projects

**Automated Large-Scale 3D Neuron Reconstruction with Deep Learning** — *Beijing, China*

AI for Biomedical Science — *2021/06 – Present*

- Goal: identifying brain-wide neural connectivity/morphology from optical microscopy images.
- Key technical problems: neural signal segmentation (distinguish all axonal processes from background), neuron tracing (trace individual segments into a compact neuron), etc.
- An interdisciplinary research project, cooperated with Prof. Zengcai Guo and Prof. Song-Hai Shi at the IDG/McGovern Institute for Brain Research, Tsinghua University.

## Honors & Awards

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|---|---|---|
| 2022 | **Overall Excellence Scholarship (First Prize)**, Tsinghua University | *Beijing, China* |
| 2018 | **Outstanding Bachelor Thesis Award**, Huazhong University of Science and Technology | *Wuhan, China* |
| 2018 | **Outstanding Graduates**, Huazhong University of Science and Technology | *Wuhan, China* |
| 2017 | **National Scholarship**, Ministry of Education | *China* |
| 2017 | **Outstanding Undergraduate Award**, China Computer Federation (CCF) | *China* |
| 2017 | **Gold Award**, The CCF Collegiate Computer Systems & Programming Contest (CCF-CCSP) | *Beijing, China* |
| 2016 | **Bronze Medal**, The 2016 ACM-ICPC Asia Qingdao Regional Contest | *Qingdao, China* |
| 2016 | **National Endeavor Scholarship**, Ministry of Education | *China* |
| 2015 | **Bronze Medal**, The 2015 ACM-ICPC Asia Hefei Regional Contest | *Hefei, China* |
| 2015 | **Merit Student**, Huazhong University of Science and Technology | *Wuhan, China* |

## Skills

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|---|---|
| **Programming** | Python, C/C++, etc. |
| **Deep Learning Tools** | PyTorch, Caffe, etc. |
| **Platform** | macOS, Linux, Windows |
| **Languages** | English(Fluent), Mandarin(Native speaker) |