# Chengbo Dong

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## EDUCATION

- **Renmin University of China (RUC)** — 2020.09 - 2023.06
  *Master of Computer Science* — *Research interests: Computer Vision, Media Forensics, Cross-modal Computing*
- **Beihang University (BUAA)** — 2016.09 - 2020.06
  *Bachelor of Automation Control* — *Merit student of Beijing (2019), Outstanding graduate of Beijing (2020)*

## PUBLICATION

- **C. Dong**\*, X. Chen\*, et al. MVSS-Net: Image Manipulation Detection by Multi-View Multi-Scale Supervision. In **T-PAMI, CCFA**.
- X. Chen\*, **C. Dong**\*, et al. Image Manipulation Detection by Multi-View Multi-Scale Supervision. In **ICCV, 2021**.
- **C. Dong** et al. Multi-Level Visual Representation with Semantic-Reinforced Learning for Video Captioning. In **ACMMM, 2021**

## EXPERIENCE

### *Cross-modal Computing

- **SE Intern: BingAds, STCA, Microsoft Corp.** — 2022.05 —Till Now
  *Image Recommendation in Ads*
    - Recommendation the most matched Ads image for a given Ads text;
    - Cross-modal pretraining on Ads Data;
    - 95% coverage with a precision over 80%
- **Short Video Understanding** — 2021.04 —2021.11
  *Video Captioning* — *Principal Role*
    - Multi-level representation including holistic scene-level & fine-grained object-level features;
    - Video-Text retrieval based hybrid reranking;
    - **TRECVID**'21 VTT, top2;  **ACMMM**'21 Grand Challenge, top 3;
- *Ad-hoc Video Retrieval* — *Key Role*
    - Multi common space integration and two-stage fine-grained reranking;
    - **TRECVID**'21 AVS, top3
- *Open-set Weakly-supervised Object Detection* — *Sub task*
    - Knowledge distillation on CLIP & Cation-generated pseudo label for weakly supervision

### *Media Forensics

- **Image Manipulation Detection** — 2020.12 —2021.10
  *Classification and Segmentation on Manipulated Images* — *Principal Role*
    - Learn semantic-agnostic features from views of noise distribution and edge artifact;
    - Firstly raise attention on the sensitivity and propose image-scale supervision;
- **Research Intern: Media Security Group, CRO line, Alibaba Inc.** — 2021.12 —2022.03
  *Quality Restoration for Manipulated Images Transmitted through Social Media* — *Principal Role*
    - A plug-in module to recover forensic features destroyed by social media transmission;
    - Both the plug-and-play and the joint-training strategies improve the effectiveness of forensic (5-10%).
- *Camera Source Identification* — *Principal Role*
    - Obtain camera fingerprints from cellphone-shot pictures for 1 v N source classification and 1 v 1 verification;
    - Adopted for real person authentication, stolen image identification, image leakage tracing, et.al;
- **DeepFake Classification** — 2020.06 —2020.11
  *Distinguish the Authentic / Deepfaked / GAN-generated Faces* — *Key Role*
    - Inconsistency between inner-face & outlier-face; Random mask face landmarks to suppress high-level semantic features;
    - Faceforensics Benchmark top20.

## SKILL

- Skilled in basic methods of deep learning, image segmentation & classification, video captioning
- Skilled in using Python/Pytrorch, Linux.
- CET-6, skilled in English reading and document writing

# 董程博

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## 教育经历

**中国人民大学** · 2020.09 - 2023.06
计算机科学与技术 硕士 信息学院 · 研究兴趣：计算机视觉，多媒体取证，跨模态计算

**北京航空航天大学** · 2016.09 - 2020.06
自动化 本科 自动化科学与电气工程学院 · 北京市三好学生 *(2019)*，北京市优秀毕业生 *(2020)*，学院科技辅导员

## 发表论文

- **C. Dong**\*, X. Chen\*, et al. MVSS-Net: Image Manipulation Detection by Multi-View Multi-Scale Supervision. In ***T-PAMI***.
- X. Chen\*, **C. Dong**\*, et al. Image Manipulation Detection by Multi-View Multi-Scale Supervision. In ***ICCV, 2021***.
- **C. Dong**, et al. Multi-Level Visual Representation with Semantic-Reinforced Learning for Video Captioning. In ***MM, 2021***

## 项目与实习经历

### *跨模态计算方向

**软件开发实习生: BingAds, STCA, 微软** · 2022.05 —至今
广告数据的以文搜图
- 在大规模广告数据上的跨模态预训练
- 线上召回率超 95%，精确度超 80%

**短视频内容理解** · 2021.04 —2021.11
视频描述生成 *(Video Captioning)* · 第一完成人
- 多维度视觉特征提取 (holistic scene-level & fine-grained object-level)
- 基于视频-文字检索的模型重排序
- ***TRECVID***'21 评测: VTT, top2;  ***ACMMM***'21 Grand Challenge, top3.

- 即席视频检索 *(Ad-hoc Video Retrieval)* · 主要完成人
  - 多公共空间特征集成 & 两阶段细粒度重排
  - ***TRECVID***'21 评测: AVS, top3.

- 开集弱监督目标检测 · 子任务
  - 预训练模型知识蒸馏 & 视频-文本伪标签弱监督

### *多媒体取证方向

**一般图像篡改检测** · 2020.12 —2021.10
对非生成式篡改图像进行判别和分割 · 第一完成人
- 挖掘语义无关的篡改噪声分布特征和篡改边缘痕迹，定位篡改区域
- 首次关注篡改模型对真实图片的特异度，设计多尺度监督

**研究型实习生: 媒体安全技术团队，CRO 线，阿里巴巴** · 2021.12 —2022.03
篡改图片的社交媒体传输信道恢复 · 第一完成人
- 作为前处理模块实现对质量压缩、尺寸放缩的鲁棒取证
- 在即插即用和下游任务共同训练两种策略下均能有效提高取证效果 (5-10%)

- 相机来源识别 · 第一完成人
  - 根据手机拍摄的图片获取相机指纹，实现 1vN 来源分类和 1v1 匹配校验
  - 用于图片泄露溯源、实人认证、盗图识别等场景
  - 对线上采集的真实业务数据有鲁棒性，且对未见手机型号有一定泛化性

**DeepFake 换脸检测** · 2020.06 —2020.11
判别真实人脸 / *DeepFake* 篡改人脸 / *GAN* 生成人脸 · 主要完成人
- 学习 inner / outlier face 的边界和噪声分布差异；随机涂抹五官数据增强，抑制强语义特征
- Faceforensics Benchmark top20

## 专业技能

- 掌握深度学习，图像分割、分类，跨模态计算等基础算法
- 熟练使用 Python/Pytorch，熟悉 Linux 开发环境
- 英语 CET-6，能熟练阅读和撰写英文文档