(Paul) Xin Zhou

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Work Experience

10 years of experience developing AI algorithms and applying generative AI in products. Hands-on and leading technical teams.

Baidu USA 2017 - present

- Generative AI
  - Agent for Video generation (Ongoing)
    - Lead development of multimodal collaborative agents to generate physically realistic videos, given a few prompt words and possibly assets.
  - Automatic generative quality assessment (Ongoing)
    - Solving the problem of quality control for generation pipelines
  - Generation for E-Commerce:
    - Enrich advertising materials for products. Led development of workflow for product background change, virtual try-on.
  - Generation consistency:
    - Improved generated face similarity. Launched Stylized Avatar generation for social product Synclub. DAU 10k, usage 64000 per day.
    - Improved character similarity, enhanced LoRa training for Anime Customization of Wenxin Yige. The image generation of Baidu's Large Model.
- Video understanding
  - Soccer video understanding
    - Led the development, training of soccer video understanding and event detection model. Data collection of 500 soccer matches.
    - 2020 CVPR ActivityNet Workshop Soccernet 1st prize. Raised mAP by 22%。
    - Support Vidpress video warehouse tagging. Generated 1000+ Baidu Wiki videos.
    - Open-sourced Paddle framework code. Since then, all three years' winners based their methods off our features.
- Robotics system
  - Led the development of robotic positioning software and hardware Boteye
    - Deployed for 10 customers including robotics and drone companies. 10000+ sets sold.
  - Led the development, test and deployment of inertia based localization for Baidu Map
    - Baidu Map, one of the two largest map apps in China with 2808.87M DAU.
    - This solves the problem of localization when a GPS signal is not available. Included in more than 75% of the app installs. The feature is turned on more than 1.34M times a day. Called more than 10M times a day.

Google 2015 - 2017

- Ads bidding
  - Led the development of eCPC bidding system
    - Developed bidding model suitable for eCPC bidding risks
    - Engineered a two stage asynchronous distributed system based on Flume and a hybrid (C++, R) system. Reduced system response time to 25% of before.
    - Increased performance of $10bn annual earning by 1%.
  - Developed a cold start system for TargetCPA
    - Increased ROI by 5% for TargetCPA cold start users.

Education

- PhD Mathematics University of Michigan, Ann Arbor 2009 - 2015
- BSc Science Peking University 2005-2006， Hong Kong University 2006-2009， UC San Diego 2007-2008

Selected Publications

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- SoccerNet game state reconstruction: End-to-end athlete tracking and identification on a minimap, V Somers et al, CVPR 2024 CVSports workshop
- GBSD: Generative Bokeh with Stage Diffusion, J Deng, X Zhou, H Tian, Z Pan, D Aguiar, ICASSP 2024
- Retrieving Conditions from Reference Images for Diffusion Models, H Tang, X Zhou, J Deng, Z Pan, H Tian, P Chaudhari
- Smooth and Stepwise Self-Distillation for Object Detection. Jieren Deng, Xin Zhou, Hao Tian, Zhihong Pan, Derek Aguiar, ICIP 2023
- RAISING THE LIMIT OF IMAGE RESCALING USING AUXILIARY ENCODING. Chenzhong Yin, Zhihong Pan, Xin Zhou, Le Kang, Paul Bogdan, ICASSP 2023
- SoccerNet 2023 challenges results, A Cioppa et al.
- Diffusion Motion: Generate Text-Guided 3D Human Motion by Diffusion Model. Zhiyuan Ren, Zhihong Pan, Xin Zhou, Le Kang, ICASSP 2023
- Fast Diffusion Probabilistic Model Sampling through the lens of Backward Error Analysis. Yansong Gao, Zhihong Pan, Xin Zhou, Le Kang, Pratik Chaudhari.
- Arbitrary Style Guidance for Enhanced Diffusion-Based Text-to-Image Generation. Zhihong Pan, Xin Zhou, Hao Tian. WACV 2023
- SoccerNet 2022 Challenges Result. Proceedings of the 5th International ACM Workshop on Multimedia Content Analysis in Sports. MMSports 2022
- Enhancing Image Rescaling using Dual Latent Variables in Invertible Neural Network. Min Zhang, Zhihong Pan, Xin Zhou, C.-C. Jay Kuo. ACMMM 2022
- CVSports the Best paper award: SoccerNet-Tracking: Multiple Object Tracking Dataset and Benchmark in Soccer Videos. Anthony Cioppa, Silvio Giancola, Adrien Deliege, Le Kang, Xin Zhou, Zhiyu Cheng, Bernard Ghanem, and Marc Van Droogenbroeck
- Soccernet: https://www.soccer-net.org/team https://arxiv.org/abs/2106.14447 https://github.com/baidu-research/vidpress-sports Feature Combination Meets Attention: Baidu Soccer Embeddings and Transformer based Temporal Detection Xin Zhou, Le Kang, Zhiyu Cheng, Bo He, Jingyu Xin https://www.youtube.com/watch?v=tA9E1hkiyB0&ab_channel=ACADResearch https://www.youtube.com/watch?v=5fM6wxw760s&ab_channel=ActivityNet my part https://youtu.be/5fM6wxw760s?t=1461 https://youtu.be/5fM6wxw760s?t=2374
- ASM-Loc: Action-Aware Segment Modeling for Weakly-Supervised Temporal Action Localization Bo He, Xitong Yang, Le Kang, Zhiyu Cheng, Xin Zhou, Abhinav Shrivastava; Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2022, pp. 13925-13935
- Feature Combination Meets Attention: Baidu Soccer Embeddings and Transformer based Temporal Detection. Zhou, Xin, et al., arXiv preprint arXiv:2106.14447 (2021).
- HaoChih Lin, Baopu Li, Xin Zhou, Jiankun Wang, Max Q.-H. Meng: No Need for Interactions: Robust Model-Based Imitation Learning using Neural ODE. ICRA 2021: 11088-11094
- Asymptotics Torus Weights in Syzygies of Toric Varieties. Xin Zhou. Journal of Algebra 480 (2017): 144-167.
- Asymptotic Schur decomposition of Veronese syzygy functors (w/ M. Fulger) Mathematische Annalen 362 (2015), no. 1–2, 529–540
- Effective Non-vanishing of Asymptotic Adjoint Syzygies. Xin Zhou. Proc. of AMS, Volume 142, Number 7, Pages 2255-2264.