

# Junyao Hu (胡钧耀)

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## EDUCATION

**China University of Mining and Technology** (Xuzhou, China) Sep 2019 - Jun 2023  
B. Eng., Computer Science and Technology. Score: 88.78, GPA: 4.17/5.00, Rank: 10/129 (top 8%). [\[Certificate\]](#)  
Coursework: Python Programming Practice (100), Artificial Intelligence Control (98), Application Software Development Practice (98), Linear Algebra (97), Practical Optimization Algorithms (97), Data Structure (92). [\[Transcript\]](#)

## PUBLICATIONS

Zhang, Z., **Hu, J.**, Cheng, W., Paudel, D., & Yang, J. (2024). ExtDM: Distribution extrapolation diffusion model for video prediction. In *CVPR* (pp. 19310-19320). (CCF-A, co-first author) [\[Paper\]](#)[\[中译版\]](#)

## RESEARCH EXPERIENCE

**Effective Video Prediction Method based on Diffusion Model** Dec 2022 - Jun 2024  
[CV Lab](#), Nankai University (Tianjin, China). Supervised by [Jufeng Yang](#), [Wentao Cheng](#). [\[Code\]](#)[\[Video\]](#)

- Conducted extensive research on prevalent video diffusion models and video prediction methods, enhanced the understanding of different methods' features and advantages by delving into the analysis of pertinent literature.
- Innovated a novel approach that extrapolates video content from current frames towards future ones by modeling the distribution shift of motion cues, significantly reducing the computational load in the denoising process.
- Executed comparative experiments on MCVD, LFDM, RaMViD, etc., and ablation studies on different settings like prediction space type, attention mechanism, etc., analysed experiment results, authored the foundational manuscript.
- Led to a co-first author publication at CVPR 2024, served as a poster presenter at VALSE 2024.

**Intelligent Vision Lawn Mower** Jun 2023 - Jun 2024  
[CV Lab](#), Nankai University (Tianjin, China). Supervised by [Jufeng Yang](#). [\[Code\]](#)[\[Video\]](#)

- Executed comprehensive market research, assessed the strength and weakness of rival products, validated the robustness of Raspberry Pi and the practicality of AI algorithms through consulting and technical evaluations.
- Engineered an effective obstacle avoidance algorithm, deployed the algorithm in Robot Operating System (ROS), enabling the lawn mower to integrate vision and ultrasonic sensing for pedestrian and obstacle detection and evasion.
- Crafted functional prototypes of the control app, liaised with the developer to convey technical details, executed field tests to assess the app's performance across various environments, provided constructive feedback for refinement.

**Mine 3D Construction & Location Technology** Mar 2021 - Jun 2023  
China University of Mining and Technology (Xuzhou, China). Supervised by [Jiaqi Zhao](#), [Yong Zhou](#). [\[Report\]](#)[\[Video\]](#)

- Developed movement control and communication software for the robot car by ROS and Qt Creator programming.
- Collected and labeled lane line segmentation data, engineered an effective lane detection algorithm based on U-Net.
- Served as deputy captain and competed in intelligent car competition, achieving the national third-place award.

**EasyWriting: Intelligent Content Creation Platform** May 2022 - Aug 2022  
China University of Mining and Technology (Xuzhou, China). Supervised by [Ying Zhao](#). [\[Report\]](#)[\[Video\]](#)

- Scraped and cleaned data from official political commentary websites to collect articles of title, content, type, etc.
- Developed the website using Django, designed functions such as generating suggested article titles and summary.
- Served as team leader and participated in software design competition, achieving the national third-place award.

## HONORS & AWARDS

**National Scholarship** (top 1%) Dec 2020  
**Excellent Undergraduate Graduate** (top 5%) Jun 2023  
**National College Student Intelligent Car Competition** - National Third Prize Sep 2022  
**China Software Cup College Student Software Design Competition** - National Third Prize Oct 2022  
**China Undergraduate Mathematical Modeling Competition** - Provincial First Prize Oct 2021

## ACADEMIC SERVICE

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**Reviewer:** CVPR'24 ([Outstanding Reviewer](#)), ACMMM'23, TMM'23

### Teaching Assistant

- High School Student Talent Plan Jun 2024  
Guided students to learn python programming, assisted them in developing innovative projects. [[Code](#)][[Video](#)]
- Freshman Education Lecture Aug 2022  
Offered actionable advice to freshmen on thriving academically and socially in college on my experience. [[Slide](#)][[Video](#)]
- Discrete Mathematics May 2021  
Helped students to grasp concepts through targeted review sessions enriched with example problems. [[Slide](#)][[Video](#)]

### Open Source Repository

- Common Metrics on Video Quality Jun 2024  
Integrated FVD, PSNR, SSIM, and LPIPS calculation methods for assessing generated videos' quality easily. [[Code](#)]
- Academic Project Page Template Vue Jan 2024  
Developed a new project homepage template based on Vue, which supports one-click copying of BibTex. [[Code](#)]
- MiniSora Jan 2024  
Collected the latest and interesting papers about video generation, managed the repository's PR and review. [[Code](#)]

### Community Contributor

- SmartFlow WeChat Official Account Jun 2024  
Authored articles for the account, delivering comprehensive analyses and interpretations of CVPR Best Paper. [[Post](#)]
- Datawhale Sep 2020  
Served as promotion ambassador, promoted team learning activities and competitions to new learners. [[Post](#)]

## WORKING EXPERIENCE

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**Vice Director of Video Production Department** Sep 2021 - Jun 2022  
CUMT/CUMTCS New Media Center (Xuzhou, China). [[Code](#)][[Video](#)]

- Employed Python crawlers to detect sensitive content in website articles by utilizing Requests and Selenium.
- Supervised 2 short films, produced 30+ videos to promote the campus, with 250K+ likes.

## MISCELLANEOUS

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**Languages:** English: TOEFL (TBD), CET-6 (540), CET-4 (541); Mandarin Chinese: Native.

**Technical Skills:** Data analytics, web development, prompt engineering.

**Strength:** Self-driven power, time-management capability, 10-year class monitor experience.

**Hobbies:** Self-media (reached 2.7M+ plays on [Bilibili](#)), running (completed half marathon once), singing (performed during school's [Gala](#) as member of the choir).