

UG Summer Research Internship 2024

Project List

No.	Research Project Title	Dept	Name of Supervisor
1	Enhancing Graph Neural Networks Using Retrieval-Augmented Generation (RAG)	CSE	CHENG James
2	Human pose estimation for the auto rating model	CSE	CHENG James
3	Skeleton-based Motion Transfer Video Synthesis and Action Rating System	CSE	CHENG James
4	Analysis of Video Embeddings for Temporal Sensitivity and Content Diversity	CSE	FARNIA Farzan
5	Evaluating Image Generative Models: Stable diffusion-v2 and Pixart-alpha	CSE	FARNIA Farzan
6	Diversity Evaluation of Large Language Models	CSE	FARNIA Farzan
7	Enhancing Real-world hand-object interactions with virtual replacement	CSE	FU Chi Wing Philip
8	A 3D object dataset for robotic manipulation with LLM annotations	CSE	FU Chi Wing Philip
9	Computational LEGO Design	CSE	FU Chi Wing Philip
10	Social Biases in Vision-Language Models	CSE	HO Tsung Yi
11	Out-of-Distribution Detection in Deep Learning Systems	CSE	HO Tsung Yi
12	Fact or Fairness? Identifying Over-Balanced Issues	CSE	HO Tsung Yi
13	Fineva: A Benchmark for Evaluating Finance-Focused LLM Agents	CSE	HO Tsung Yi
14	Personalized Federated Recommendation System	CSE	KING Kuo Chin Irwin

15	Enhanced RNA Solvent Accessibility Prediction with RNA Language Model	CSE	LI Yu
16	When Bioinformatics Meets Large Language Model Prompting: A Survey and Generation Method	CSE	LI Yu
17	RNA N6-methyladenosine Methylation Site Prediction based on LLM Embeddings	CSE	LI Yu
18	Cross-Domain Recommendation System	CSE	LI Yu
19	Evaluation of SUPG on Video Analytics	CSE	LO Chi Lik Eric
20	Automatically Detecting Audio-Visual Inconsistencies in 3D Software Systems	CSE	LYU Rung Tsong Michael
21	Evaluate the memorization difficulty of data in Large Language Models	CSE	LYU Rung Tsong Michael
22	MedEval: Real-World Multi-Modal Benchmark for LLMs in Medical Scenarios	CSE	LYU Rung Tsong Michael
23	ComboBench: Can LLMs Manipulate Physical Devices to Play VR Games?	CSE	LYU Rung Tsong Michael
24	Detecting bugs in Python-C binding code	CSE	MENG Wei
25	Distinguishing and Evaluating Machine Bias in Multimodal Language Processing	CSE	WANG Liwei
26	UI2Code:generating UI code from screenshot with the help of LLMs	CSE	WANG Liwei
27	Asclepius Benchmark	CSE	WANG Liwei
28	Designing the General Integration Benchmark for Large Multimodal Models	CSE	WANG Liwei
29	The Dark Side of AI Models	CSE	XU Qiang
30	New Font Generation from Classic Calligraphy	CSE	YOUNG Fung Yu Evangeline

31	Video-based Visible-Event Pedestrian Re-Identification	CSE	YU Bei
32	Implementation of Flow-based Legalization	CSE	YU Bei
33	Integrating Automated Theorem Prover and Declarative Prompting for Enhanced Complex Reasoning in Language Models	CSE	YU Bei
34	Routing-aware Legal Hybrid Bonding Terminal Assignment for 3D Face-to-Face Stacked ICs	CSE	YU Bei
35	End-to-end learning for optical communication systems	EE	HUANG Chaoran
36	Inverse design enables high computing density integrated photonic computing engine	EE	HUANG Chaoran
37	48V/240W conventional 4 switch buck-boost dc-dc converter for the newly launched standard of USB Power-delivery (PD) 3.1	EE	LEUNG Ka Nang Alex
38	Estimation of Water Surface Velocity Using FMCW Radar with On-Chip Antenna.	EE	WU Ke Li
39	Optimization and Improvement of the Underground IoT Device	EE	WU Ke Li
40	Detecting moving objects with FMCW millimeter wave radar	EE	WU Ke Li
41	Datacentric Automated Lesion Segmentation in Whole-Body PET/CT - Multitracer Multicenter Generalization	EE	YUAN Yixuan
42	Photoplethysmography Signal Quality Assessment based on Morphology	EE	ZHAO Ni
43	Coherent Optical Communication	IE	CHAN Chun Kit Calvin
44	Probabilistic Constellation Shaping Analysis and Simulation in Optical Communication Systems	IE	CHAN Chun Kit Calvin
45	Real-Time Video Analytics with Multimodal LLM: Co-Designing Communication and Computation	IE	CHEN He Henry
46	Conditional Ingleton Inequalities on secret sharing schemes with four participants	IE	LI Cheuk Ting

47	Utilizing Vector Error Correction Models with Cointegration Relationships to Analyze Cryptocurrency Market Dynamics	IE	LIEW Soung Chang
48	Evaluating the Performance of Different Large Language Models	IE	NAIR Chandra M.
49	Training Gobang AI by AlphaZero	IE	YUE Xiangyu
50	Humanoid Robot Motion Control	MAE	LAU Tat Ming Darwin
51	Hypergraph and Graph Prompt: A Survey and a Library	SEEM	CHENG Hong
52	Why Prompt? A Theoretical Analysis of the Effectiveness of Graph Prompt Learning	SEEM	CHENG Hong
53	Deep Learning Statistical Arbitrage	SEEM	JIA Yanwei
54	Bayesian inference in estimating portfolio choices	SEEM	JIA Yanwei
55	Application of ChatGPT to The Newsvendor Model	SEEM	LONG Zhuoyu Daniel
56	A Retrieval Augmented Question Answering System	SEEM	MENG Mei Ling Helen
57	On the Robustness of Quantization Algorithms during the Training Phase of Deep Neural Networks	SEEM	WAI Hoi To
58	Graph Signal Processing for the recommendation problem	SEEM	WAI Hoi To
59	Improving Accuracy and Query Efficiency in Anomaly Detection on Attributed Networks	SEEM	WANG Sibao
60	Data Collection for Elderly-Facing Text-to-Speech Synthesis	SEEM	WU Xixin