

## Westlake University 2024 Summer Research Internship

No.	School	Name	Research field	Internship project	Number of internships	Campus	Requirements
1	School of Science	Bing GU	Theoretical Chemistry	Watching molecules dance by light	Two	Yungu campus	
2	School of Science	Chao Tang	Systems Biology and Complex Systems	1.Data analysis and modeling of cell fate determination 2.Application of artificial intelligence in living systems	Two	Yungu campus	
3	School of Science	Fanglin BAO	Optics	1. Thermal facial recognition using HADAR 2. Quantum semantic distance in image classification	Two	Yungu campus	Physics or Optics background is preferred
4	School of Science	Haihua LU	Natural product synthesis	Asymmetric Total Synthesis of (+)-Nakadomarin A	Two	Yungu campus	
5	School of Science	Hongfei WANG	Surface and Interface sciences/Ultrafast Laser Spectroscopy/Chemical Physics	1. Second harmonic Generation from Liquid and biological surfaces 2. Surface nonlinear vibrational spectroscopy of liquid, material or biological surfaces	Two	Yungu campus	Physics or Chemistry
6	School of Science	Hongyu CHEN	Nanosynthesis, development of synthetic methods	Surface-Enhanced Raman Spectroscopy Study: Loading of dyes in silica nanoparticles	Two	Yungu campus	
7	School of Science	Leihan TANG	Statistical Physics and Complex Systems	1. Pattern formation in active liquid films 2. Learning dynamics of deep neural networks 3. Agent-based model exploration for epidemic control	Two	Yungu campus	
8	School of Science	Li DENG	Catalysis and synthesis	Formal cycloaddition reaction of strained bicycles	Two	Yungu campus	
9	School of Science	Pengfei HU	Organic Chemistry	Natural product synthesis and biological investigations	Two	Yungu campus	Chemistry, Pharmacy
10	School of Science	Sida SHAO	Identifying bioactive molecules with chemical genetics approaches to study tissue regeneration	High-throughput phenotypic screening based on spatial multiomics readouts	One	Yunqi campus	Chemical biology, Bioinformatics, Stem cell biology
11	School of Science	Xin ZHANG	Chemical Biology	1. Design, synthesis and application of super-resolution fluorescent probes 2. Study on biochemical mechanism of the physical microenvironment of protein condensates	Two	Yungu campus	Chemistry, Polymer Chemistry, Polymer Physics, Biology, Biotechnology
12	School of Science	Yuxuan YE	Biocatalysis	Repurposing enzymes for new-to-nature transformations.	Two	Yungu campus	Organic Chemistry
13	School of Science	Zhaobin WANG	Organic Chemistry	Radical-involved Asymmetric Reactions via Earth-abundant Metal Catalysis	Two	Yungu campus	
14	School of Science	Zhennan ZHOU	Applied Math, Computational Math	1. Multiscale analysis and computation in quantum systems 2. Multiscale modeling and computation in neuroscience	Two	Yungu campus	Familiar with numerical analysis and computational methods, interested in quantum mechanics or neuroscience

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15	School of Science	Zhichang LIU	Molecular-strain	Molecular-Strain Engineering	Two	Yungu campus	
16	School of Engineering	Boyi HE	Microbiome engineering, Quantitative biology	1. Functional selection in microbiomes (computational) 2. Directed evolution of microbiomes (experimental)	Two	Yungu campus	We welcome applicants from diverse backgrounds, including but not limited to systems and synthetic biology, physics, and computer science.
17	School of Engineering	Enzheng SHI	Nano semiconductor materials	1. Preparation of high strength hexagonal boron nitride bulk crystals 2. Slicing of semiconductor ingot	Two	Yungu campus	
18	School of Engineering	Kaicheng YU	Computer vision , machine learning, and building a multi-modality autonomous intelligent system	1. Broader topics of automatic machine learning 2. Applied research on end-to-end autonomous driving, visual perception 3. Build a future data-in-the-loop autonomous intelligent AI system 4. Explore the interdisciplinary future research possibility of AI and Science, preferably using AI to help knowledge discovery	Two	Yungu campus	
19	School of Engineering	Huan WANG	Computer vision, generative AI, neural rendering	1. Research on compression and acceleration of multimodal large language models (goal: to publish a top conference paper) 2. Research on high-performance text-to-image diffusion models for mobile devices (goal: to publish a top conference paper)	Two	Yungu campus	Majors related to computer science, communication, electronic science and technology, etc. Having a solid foundation in programming (Python) and mathematics. Familiar with commonly used deep learning frameworks and basic knowledge of computer vision.
20	School of Engineering	Jianjun CHENG	NCA ring-opening polymerization	A DLS study on the aggregation states of reactants during NCA polymerization	One	Yungu campus	
21	School of Engineering	Jiayang ZENG	The research interests of the Zeng lab mainly focus on computational biology, machine learning and big data analysis, particularly the intersection between artificial intelligence/machine learning and life sciences.	1. Development of novel biological tools based on metagenomic data mining 2. Development and applications of new drug design technology based on all-atom large models and dynamic structures of protein targets	One	Yungu campus	Computational biology, machine learning and big data analysis, particularly the intersection between artificial intelligence/machine learning and life sciences.
22	School of Engineering	Jingyi TIAN	Optical metamaterials and metasurfaces	1. Research on Light Control Based on Topological Hyperstructured Surface 2. High quality factor chiral metasurface design	Two	Yungu campus	
23	School of Engineering	Min QIU	Micro-nano optoelectronics, including micro-nano fabrication technologies and instrumentation, micro-nano photonics theory and optoelectronic devices, key theories and technologies for smart applications, etc.	1. Micro/nano fabrication technologies and instrumentation (ice lithography, Femtosecond laser processing, optical microscopy, etc.) 2. Nanophotonic devices (meta-fibers, meta-DOEs, 2D semiconductors, perovskite photodetectors, etc) 3. Smart equipment for industrial applications (LED lighting, AR/VR displays, micro photoactuators, chip cooling, etc.)	Two	Yungu campus	
24	School of Engineering	Sergio Torres	Computational Mechanics	From CT scan to implicit representation for granular materials with complex particle shapes	One	Yungu campus	Math, Mechanics related majors; good programming skill, C++ is preferred
25	School of Engineering	Siyong PENG	Nanophotonics	Polarization tunable nanophotonic materials	Two	Yungu campus	Students with a physics background or good experimental experience are preferred.
26	School of Engineering	Tailin WU	Artificial intelligence accelerates scientific simulation, design, and discovery	A Scientific Simulation Model for Macrodynamics Systems	Two	Yungu campus	Applicants should have a certain level of AI foundation and strong coding

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27	School of Engineering	Tao LIN	Optimization for Deep Learning, Collaborative Deep Learning	1. Data efficient optimization for deep learning 2. Collaborative LLM agent	Two	Yungu campus	
28	School of Engineering	Weixuan NIE	CO2 electrocatalytic conversion	Catalytic system design	Two	Yungu campus	Chemistry, complex synthesis, materials, electrochemistry
29	School of Engineering	Xianda GONG	Atmospheric Science	Analysis of Aerosol Cloud Interaction Based on Aerial Measurement	Two	Yungu campus	Atmospheric Science, Earth Science, Environmental Science
30	School of Engineering	Xiangru HUANG	Computer graphics	Automated collection of high-quality 3D facial data	One	Yungu campus	
31	School of Engineering	Xiaorui ZHENG	Processing, characterization, regulation, and device research based on scanning probe technology	1. National major scientific research projects 2. Special research project on optoelectronic chips	One	Yungu campus	
32	School of Engineering	Yao YANG	Electron microscopy, Energy materials	1. Development of electronic microscopy algorithms driven by artificial intelligence 2. Synthesis and characterization of high entropy catalytic materials	Two	Yungu campus	
33	School of Engineering	Zexin JIN	Organic Functional Materials	The synthesis of organic materials	Two	Yungu campus	
34	School of Engineering	Zhenzhong LAN	Natural language processing	1. How to align LLM with human value 2. AI Psychotherapist	Two	Yungu campus	Should be NLP background
35	School of Life Sciences	Changliang LIU	Neuronal signal transduction	Functional Dissection of the Striatal Dopamine System	Two	Yungu campus	
36	School of Life Sciences	Hongtao YU	Cell biology	Modeling neurodegenerative diseases with human brain organoids	One	Yungu campus	
37	School of Life Sciences	Jia ZHENG	molecular evolution and engineering	Protein evolution; Evolutionary synthetic biology	Two	Yungu campus	
38	School of Life Sciences	Jian Yang	Bioinformatics	AI for Life Sciences	Two	Yungu campus	
39	School of Life Sciences	Jing Huang	Computational Drug Discovery	Deep Learning of DEL, by DEL, and for DEL	One	Yungu campus	Coding skills required
40	School of Life Sciences	Kai ZHANG	Computational regulatory genomics	Application of biological foundation models in studying gene regulation	Two	Yunqi campus	Applicants should have strong quantitative background.
41	School of Life Sciences	Kunliang Guan	Cancer Cell Biology	Hippo signaling pathway	One	Yungu campus	
42	School of Life Sciences	Luping YIN	The neurocircuitry regulation of social behaviors	1. The neural mechanisms of sexual competitions on male sexual behavior 2. The function of mirror neuron during male sexual observational learning	Two	Yunqi campus	Preferred backgrounds include computer science and neuroendocrinology.

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43	School of Life Sciences	Qi HU	Pharmacology	Anti-cancer drug target research and drug development	Two	Yunqi campus	
44	School of Life Sciences	Weike PEI	Immunology and stem cell biology	1. Unraveling the physical cell-cell interactions at the tumor-immune interface 2. Neuro-immune interactions in central nervous system disorders	Two	Yungu campus	
45	School of Life Sciences	Xin JIN	Cancer Biology	1. Investigating cancer dependencies using CRISPR technologies 2. Investigating metastasis mechanisms using genomics approaches	Two	Yungu campus	
46	School of Life Sciences	Yanxiao Zhang	Bioinformatics, Epigenomics, Aging	Epigenetics of aging and cancer	Two	Yungu campus	
47	School of Life Sciences	Yigong SHI	Structural Biology	1. Investigation of novel cyclic di-nucleotide synthase based on AlphaFold prediction 2. A mechanistic study of Alzheimer's disease caused by APOE-isoform-specific downstream receptors	Two	Yunqi campus	
48	School of Life Sciences	Yihan Wan	Single molecule dynamic gene expression	Single-cell single-molecule transcription dynamics	One	Yungu campus	
49	School of Life Sciences	Ying ZHEN	Evolutionary Biology	Adaptive Evolution in Fruit Flies	Two	Yungu campus	
50	School of Life Sciences	Zibo CHEN	Synthetic biology	Protein circuit design	Two	Yungu campus	Computer science background preferred
51	School of Medicine	Dieter Wolf	RNA-based mechanisms underlying cellular processes related to cancer and age-related diseases	Exploring the role of eIF3 in human disease	Two	Yunqi campus	
52	School of Medicine	Ren SUN	Virology, Immunology	High resolution profiles of immune responses; vaccine development against viral infection	Two	Center for Infectious Disease Research	
53	School of Medicine	Xing CHANG	Harnessing immunology for the development of novel genetic editing technologies	Immune and gene therapies of monogenic diseases	Two	Yungu campus	
54	School of Medicine	Zhaoqian WANG	CryoEM, CryoET	1. CRISPR screening of Langya Virus receptor 2. In situ study of BEVS assembly process	Two	Center for Infectious Disease Research	Computer background
55	School of Medicine	Zixu LIU	Innate immunity	1. Identify the novel immune gatekeeper in response to bacterial infection 2. Molecular mechanisms by which a small molecule induces pyroptotic cell death	Two	Yungu campus	Molecular biology or bacterial genetics background