College of Life Science

Big Data Mining for Drug Repurposing Against COVID-19

The current COVID-19 pandemic is an acute and rapidly developing global health crisis. To fight the novel coronavirus, we used big data mining for drug repurposing. We find that raloxifene is effective against SARS-CoV-2 with the best inhibitory concentrations between 1 and 10 μM.

Prof. Hsu-Huei T. Yuan: yts@ntu.edu.tw

HYS Interacts With the Histone Deacetylase HDAC1 to Regulate Photomorphogenesis

Photomorphogenesis is a critical plant development process. The transcription factor HYS acts downstream of the photoreceptors to promote photomorphogenesis in Arabidopsis. We found that HYS directly interacts with the histone deacetylase HDAC1 and they act synergetically in the repression of hypocotyl cell elongation in photomorphogenesis. Our study revealed a key transcription regulatory module involved in plant photomorphogenesis.

Prof. Ke-Chung Wang: kecw@ntu.edu.tw

Ocean Litter May Never Drift Back to Land

Ocean litter has accumulated rapidly and is becoming a major environmental issue. We have identified a backwater-flank-forward tracking model simulation considering both surface ocean currents and wavelap effects. A considerable proportion (from 0.9%-26.6% per month) of ocean litter is predicted to continuously spill and cycle in large swaths of the ocean, leading to ecological catastrophe.

Prof. Chia-Ying Lin: cylin@ntu.edu.tw

Office of Academic Affairs

Overseas Taiwanese Students Return to Taiwan due to the Pandemic

In response to the COVID-19 pandemic, NTU assists overseas Taiwanese students who are returning to Taiwan with the enrollment procedures. With a 14% increase in the university’s enrollment quota, written and oral examination is used to select students who meet the admission standards of each department. For the first semester of the academic year, there have been 40 additional spots for undergraduate students, 83 for master students and 30 for doctoral students.

Prof. Shih-Tong Ding: stduanacadm@ntu.edu.tw

Implementation Measures to Protect Students’ Rights and Interests During COVID-19

For students who are unable to come to school to attend classes due to COVID-19, NTU provides flexible superevent adjustments to guarantee the continuation of their education, such as reducing lectures, integrating NTU resource systems to set up synchronous or asynchronous digital courses and adjusting scoring metrics.

Prof. Shih-Tong Ding: stduanacadm@ntu.edu.tw

NTU Future Classroom 1.0 and 2.0

In response to the development of educational technology, NTU built the first Future Classroom in February 2023. In line with the ISO, BMW, FIFA standards, this classroom features the integration of new technologies to create an environment for participatory learning. NTU will continue to build a 2.0 version as the model classroom to promote the idea of participatory learning.

Prof. Chih-Kang Chiou: ckchiou@ntu.edu.tw

College of Electrical Engineering & Computer Science

World-Leading AI Research

Wuhan institute ranks NTU the 37th in all universities working on AI of the world, the first in Asia. The nature in-warehouse recognizes Prof. Shien-Lian Lee as one of East Asia’s most influential AI researchers.

Prof. Chih Jen Lin: slbwnm has been downloaded 1,000,000+ times and received 46,000+ citations.

Prof. Yong-Yu Chuang: ccy@cise.ntu.edu.tw

Research of Semiconductor Technology Beyond 3nm-TSMC-NTU Research Center

The TSMC-NTU center focuses on novel devices, advanced interconnects, and 2D materials for the extension of Moore’s law and next-generation semiconductor technology. Innovations on 2D transistors, 2D interconnect, and quantum computing have been demonstrated for impacts on artificial intelligence, internet of things, and big data to ensure Taiwan’s leading position.

Prof. Chen Wei Lin: clwu@ntu.edu.tw

Harmonic Generation Microscopy Provides Unprecedented Contrast and Resolution for Clinical Diagnostics

Harmonic generation microscopy, an NTU-patented technology, provides unprecedented contrast, penetration, and resolution inside human skin. Multiple clinical trials conducted at NTU have proven the superior performance of the system over the current clinical devices including OCT and reflection confocal microscopy for diagnosis and treatment assessment of skin diseases.

Prof. Chi-Kuang Sun: mnt@ntu.edu.tw

College of Law

The Development of Digital Technology and the Future of Law

Our research theme: The Development of Digital Technology and the Future of Law is a joint project with Hambury Law School emphasizing topics on critical issues such as self-driving, financial technology, social media and democratic processes, digital communication and privacy, and artificial intelligence. Discussions derive from various aspects of jurisprudence, media law, commercial law, criminal law, evidence and procedure law.

Prof. Jen-Guang Lin: andrewlin@ntu.edu.tw

Legal Identity Safeguards for State Institutions and National Public Officials

Legal Identity Safeguards for State Institutions and National Public Officials is a collaborative Elective with Radboud University and the University of Hong Kong, which benchmarks a comprehensive discussion of the anti-corruption and clean government issues.

Prof. Jen-Guang Lin: andrewlin@ntu.edu.tw

Comparative Law

Comparative Law has long been our law school’s main research focus. Now recently, our research trend emphasizes the possibility of regional legal integration, such as Civil Law Contract Law in the development of Asian countries and courts, comparative analysis of the similarities and differences in Taiwan, South Korea, and China.

Prof. Jen-Guang Lin: andrewlin@ntu.edu.tw

Office of Research & Development

City-Data Through Real-Time Images

City real-time images offer huge business opportunities. OmEyes Co. Ltd. founded by Prof. Chen Ting-Fang, Department of Information Engineering, and Prof. Chen Ching-Pao and Shu-De Lin, Department of Computer Science & Information Engineering, applies big computing for a comprehensive collection of citydata. Using cameras as buses, taxis, and other vehicles, they generate real-time city images delivering high commercial value.

Prof. Chen Ting-Fang: chtingfang@ntu.edu.tw

Prof. Chen Ching-Pao: loglandscape@ntu.edu.tw

Prof. Shu-De Lin: slin@csie.ntu.edu.tw

Fighting Diseases With Healthy Cells

Using artificial immune system,剑桥公司在识别和摧毁疾病引起的细胞。Prof. Jin-Lih Tang, College of Medicine, developed a technology to separate, propagate, and store young immune cells and peripheral blood stem cells, and stabilized devices in Prof. Bing-Cai as the first leading company in the field. The preserved healthy immune cells and tissue regenerating peripheral blood stem cells are a powerful tool to fight tumor diseases.

Prof. Jin-Lih Tang: tangji@ntu.edu.tw

Use Microfluidics Technology to Detect Disease-Related Molecules in the Body

Uninfectious diseases are mainly comprised of microcircuits and enzymes, which are encapsulated by nuclear acids and proteins. They are involved in tumorigenesis and other disease processes. In vitro diagnosis of enzymes is very difficult because its size of 150nm is smaller than the wavelength of visible light. Prof. Andrew Wu’s group has developed a new technology to detect enzymes and established enzyme sensors. This technology uses specific microfluidics technology to recognize the progression of diseases as a reference for medical treatment.

Prof. Andrew Wu: awsh@ntu.edu.tw

Office of International Affairs

Promoting SDG Through International Collaboration Seed Funding

To strengthen cooperation with strategic partners and establish research partnerships with top universities worldwide, NTU promotes the International Collaboration Seed Funding Program. Projects from various fields are welcome, including the US, Canada, France, UK, Germany, Poland, South Korea, Singapore, Thailand, and mainland China as preferred partners. Project teams are expected to attend one of the NTUs’ biannual Research Development (R&D) forums with higher priority given to SDS “Good Health and Well-being,” SDG “Life on Land,” and “Life on Land,” and “Sustainable Cities and Communities,” and “Sustainable Cities and Communities.”

COVID-19 Special Visiting Student Program Ensures Continuous Education

Due to the pandemic, many overseas students were unable to return to universities overseas and find alternative to study abroad. To ensure their right to education, the cooperation set the “COVID-19 Special Visiting Student Program.” Students from more than 30 universities worldwide, including the Massachusetts Institute of Technology, Stanford University, the London School of Economics, enrolled as visiting students. It is estimated that through this program, hundreds of students will study in relevant colleges in NTU.

Subsidies for Teaching In English Enhances International Learning Experience

To improve the learning experience of both international and local students, the subsidies for Teaching in English were introduced, including partial travel and accommodation stipends and reimbursement for textbooks and software. All courses include vigorous lectures and discussion and application. The courses cover a wide range of disciplines and are delivered by renowned faculties from around the world.

Special Edition

COVID-19

Social Impact

Research Highlights

Special Edition

Research Highlights

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