

# 2022 Nankai Online “AI Algorithms and Applications” Program

## Program Highlights

- AI, machine vision, robots in medicine;
- Fundamental knowledge, cutting-edge techniques and systems, a wide range of application case studies;
- A diverse real-world scenarios with two-week study.



## What You Will Learn

- Fundamental concepts of computational imaging, image processing, and computer vision;
- Fundamental knowledge of medical robotics;
- How AI enables robots for challenging clinical operations;
- Applications of computer vision algorithms on 2D & 3D scene understanding;
- How the clinical need can be formulated as technical problems, and to develop technical solutions;
- How to design and conduct clinical studies and analyze the results to validate or improve the technical scheme.



## — PROGRAM —

June 27 - July 8, 2022  
15:00-18:10 PM  
(Beijing Time)  
Live Zoom Lectures



## — Application Deadline —

June 20



## — CONTACT —

Ms. Liuqing WANG  
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Nankai University  
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### What are the registration requirements?

- Exclusively open to the partners of Nankai University (**Cost Free**);
- Undergraduates and postgraduates, undergraduates need to have completed at least 2-year undergraduate study when applying;
- Major in computer science, electrical engineering, medical engineering, etc.;
- Sufficient English proficiency and basic programming skills.

### How do I register the program?

Submit the registration form through email, to [exchange@nankai.edu.cn](mailto:exchange@nankai.edu.cn). Within one week after the application submission, applicants will be informed with admission decisions by the admission team. The admission will follow the principle of “first come first serve” due to the limited space.

### How can I obtain the learning certificate?

- **Attend at least 80% of the courses.** Please contact your TA beforehand if you have to be absent to class.
- **Submit a scientific report of the courses.** You are expected to submit a scientific report on what you have learned in the program before July 30.

## Nankai University

- Founded in **1919**
- One of the **TOP** universities in China
- **32,000+** students, **2200+** faculty members
- **27** colleges and **190+** academic programs
- **15** disciplines are among the top **1%** of ESI



For more information, please click >> <http://en.nankai.edu.cn>

## — The Faculties —

### Course 1: Machine Vision

- **Lecturer: Ming-Ming Cheng**  
Professor, College of Computer Science, Nankai University
- **Educational Background:** Ph.D, Tsinghua University
- **Research Interests:** Computer Vision and Computer Graphics
- **Publications:** published over 100 papers in leading journals and conferences, such as IEEE TPAMI, ACM TOG, IEEE CVPR, etc. Many of his algorithms have become quite popular in the community, receiving more than 20,000 paper citations.
- **Awards:** ACM China Rising Star Award, the IBM Global SUR award, etc.

### Course 2: AI and Robots in Medicine

- **Lecturer: Ningbo Yu**  
Professor, College of Artificial Intelligence, Nankai University
- **Educational Background:** Ph.D, ETH Zurich
- **Research Interests:** Medical Robotics and AI in Medicine
- **Publications:** published over 60 papers in leading journals and conferences in engineering, neuroscience, and clinical neurology. Many of his algorithms, techniques and systems have been applied to clinical practice, including diagnosis, surgery and rehabilitation.
- **Awards:** 5 best paper awards in national and international journals/conferences, technology innovation award for 'intelligent human-in-the-loop rehabilitation'

## Program Calendar

2022	Beijing Time (GMT+8)	Central European Time	Schedule	2022	Beijing Time (GMT+8)	Central European Time	Schedule
<b>June 27</b> (Monday)	15:00-15:30 15:30-17:00 17:10-18:10	09:00-09:30 09:30-11:00 11:10-12:10	Opening Ceremony Machine Vision: Camera & Images Invited Lecture	<b>June 28</b> (Tuesday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Image Processing AI and Robots in Medicine: Robot Kinematics and Control
<b>June 29</b> (Wednesday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Pyramid Matching AI and Robots in Medicine: Virtual Reality and Force Feedback	<b>June 30</b> (Thursday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Edge Detection AI and Robots in Medicine: Surgical Robot Systems
<b>July 1</b> (Friday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Invited Lecture AI and Robots in Medicine: Medical Imaging and Processing	<b>July 4</b> (Monday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Interesting Point Detection AI and Robots in Medicine: Image-guided Interventions
<b>July 5</b> (Tuesday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Fitting & Alignment AI and Robots in Medicine: Neural Deficits and Rehabilitation Robot Systems	<b>July 6</b> (Wednesday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Stereo Matching & Depth Estimation AI and Robots in Medicine: Rehabilitation Therapy and Assessment
<b>July 7</b> (Thursday)	15:00-16:30 16:40-18:10	09:00-10:30 10:40-12:10	Machine Vision: Multi-Scale Image Understanding Invited Lecture	<b>July 8</b> (Friday)	15:00-16:30 16:40-17:40 17:50-18:10	09:00-09:30 09:40-11:40 11:50-12:10	AI and Robots in Medicine : Clinical Applications Invited Lecture Closing Ceremony

