

1ST INTERNATIONAL CONFERENCE AND WORKSHOP ON MATHEMATICS AND ARTIFICIAL INTELLIGENCE

Nazarbayev University, Astana

September 9–11, 2026

Fostering interdisciplinary collaboration and innovation

ABOUT CMAI 2026

The **Conference and Workshop on Mathematics and Artificial Intelligence 2026 (CMAI 2026)** is the 1st international conference that inspires interdisciplinary cooperation among young academics, scientists and practitioners.

The main fields and topic of the conference involves modern mathematics and artificial intelligence. CMAI 2026 also gives opportunity for growth in term of academic knowledge and practical skills through lectures, sessions and interactive workshops. Additionally, it serves as a platform for exchanging ideas, presenting recent research advances, establishing new collaborations, and discussing future directions in mathematics and artificial intelligence.

The conference is organized by **Nazarbayev University School of Sciences and Humanities(SSH)**, **School of Computing and Artificial Intelligence (SCAI)** and **Institute of Smart Systems and Artificial Intelligence(ISSAI)**.

Hosted at **Nazarbayev University** in **Astana, Kazakhstan**, the conference brings together an international academic community in an environment designed to encourage scientific discussion, knowledge exchange, and interdisciplinary research.

Dates: September 9–11, 2026

Venue: Senate Hall, Block 1, 3rd floor, Nazarbayev University, Astana, Kazakhstan

Theme: Mathematics & Artificial Intelligence

Format: Plenary Talks · Scientific Sessions · Workshops

Motto: Fostering interdisciplinary collaboration and innovation



ORGANIZING COMMITTEE

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Nazarbayev University

Muhammad Asad Zaighum

Heriot-Watt International Faculty,
K. Zhubanov Aktobe Regional University,
Aktobe, Kazakhstan



PLENARY SPEAKERS

Distinguished researchers joining CMAI 2026 as plenary speakers.



Prof. Enrique Zuazua

Friedrich-Alexander-Universität
Erlangen-Nürnberg
Germany



Prof. Jong Chul Ye

KAIST
South Korea



Prof. Peter Richtárik

King Abdullah University of Science and
Technology (KAUST)
Saudi Arabia



Prof. Bohyung Han

Seoul National University (SNU)
South Korea



PLENARY SPEAKERS



Prof. Zhenisbek Assylbekov

Purdue University Fort Wayne
USA



Prof. Amir Mosavi

Óbuda University
Hungary



Prof. Rustem Takhanov

Nazarbayev University
Kazakhstan



PRACTICAL INFORMATION

WiFi

WI-FI ACCESS

Network: **NU_Guest** (no password).

ID

REGISTRATION

Registration and check-in will take place in **Block 1, 3rd floor**, next to **Senate Hall**. Open: September 9, 08:30–09:20.

Food

MEALS & COFFEE

Coffee breaks will be served near the conference venue. A variety of coffee shops and dining options are also available in the university atrium. For additional restaurants, cafés, and shops, **MEGA Silk Way** shopping centre is located directly across Kabanbay Batyr Avenue from the university.

Access

CAMPUS ACCESS

Nazarbayev University is located between **Kabanbay Batyr Avenue** and **Turan Avenue**, and the campus can be entered from either side.

For conference participants, the **Kabanbay Batyr Avenue entrance** is generally more convenient due to better transport connections and its proximity to MEGA Silk Way.

VENUE GUIDE

The conference moves between several rooms over the three days — please check the table below so you always know where to go.

Day & Date	Time	Location
DAY 1 — Wednesday, September 9		
Full day	8:30–18:30	Senate Hall, Block 1, 3rd Floor
DAY 2 — Thursday, September 10		
Morning	9:00–14:30	Block 3, Room E220
Afternoon	14:30–19:40	Block C3, Room 2001
DAY 3 — Friday, September 11		
Full day	9:00–18:15	Block C3, Room 2001

Note: On **September 10**, the venue changes after lunch — morning sessions are held in **Block 3, Room E220**, while afternoon sessions move to **Block C3, Room 2001**. Please allow a few extra minutes to walk between buildings.



ACCESSING THE NAZARBAYEV UNIVERSITY CAMPUS

Nazarbayev University campus will be open to conference participants from 08:00 each day. The university can be accessed through two main entrances: **Turan Avenue** and **Kabanbay Batyr Avenue**. Please refer to the campus map for directions.

Upon arrival, participants should proceed to **Block 1, 3rd floor**, where the registration and check-in desks will be located. Block 1 is more conveniently accessible from the **Kabanbay Batyr Avenue** entrance.

During registration, each participant will receive a personalized identification badge. Please wear your badge at all times while on campus, as it serves as proof of conference registration and allows repeated access through the university security gates.



CAMPUS MAP

Conference registration will take place on the **3rd floor of Block 1**. For convenient access, participants are advised to use the **Kabanbay Batyr Avenue entrance**.

Campus map



English

- Main building
- Academic Buildings
- Recreational buildings and places
- Sport buildings and fields
- Checkpoint
- Student dormitories (with pharmacy, mini market, canteen, laundry, shoe repair)
- Faculty and Staff housing (with mini market, child care center, gym, beauty salon)

Key

- Main Reception
- Medical Centre
- Café or canteen
- Parking
- Library
- Coffee Shop
- Cash Machines
- Accommodation Centre
- Shop
- Air ticket office
- Stationary shop
- NU shop (books, and souvenirs)
- Bank
- Cinema
- Pharmacy
- Shoe repair and key-cutting
- Phone and laptop repair
- Children's centre
- Children's playground.

Blocks

- B1- Main building
- B12A- New Atrium
- BC2- Main building
- B2-Center for Preparatory Studies
- B3- School of Engineering and Digital Sciences
- B4-Canteen
- B5-Library and IT services
- B6- School of Mining and Geosciences
- B7- School of Engineering and Digital Sciences, School of Sciences and Humanities
- B8- School of Sciences and Humanities

- B9- NU Research and Innovation Sytem, Astana Business Campus, students' labs
- BC3-Graduate School of Business, Graduate School of Public Policy, Graduate School of Education
- B C4-Multidisciplinary Research Center
- B51-Laboratories
- B54-Laboratories
- B35- Athletic Center
- B34-Sports Center
- B13-Technopark
- B72-Administrative household
- B73-Boiler room

TRAVEL GUIDE: FROM ASTANA INTERNATIONAL AIRPORT TO NAZARBAYEV UNIVERSITY

Nazarbayev University is approximately 20–25 minutes from Astana International Airport by car. Participants may travel by taxi, LRT, or city bus.

TAXI

Official taxis are available outside the airport terminal. Alternatively, participants may use **Yandex Go**. The journey to **Nazarbayev University** usually takes approximately **20–25 minutes**, depending on traffic.

TARLAN ASTANA LRT

The **Tarlan Astana Light Rail Transit (LRT)** provides a convenient connection from the airport toward Nazarbayev University. The line has a station located next to the university campus.

The fare is **200 KZT per trip**. Payment is available by bank card, transport card, QR code, Apple Pay, Samsung Pay, and other supported contactless methods.

CITY BUS

Bus 10 connects Astana International Airport with the area near Nazarbayev University. The journey takes approximately **45 minutes**, depending on traffic and waiting time.

NAVIGATION

For routes, public transport information, and walking directions, participants may use **2GIS**, **Yandex Maps**, or **Google Maps**.



DETAILED PROGRAM

DAY-BY-DAY SCHEDULE

WEDNESDAY, SEPTEMBER 9

Senate Hall, Block 1, 3rd Floor | Nazarbayev University

Time	Session
8:30–9:00	Registration <i>Block 1, 3rd Floor</i>
9:00–9:20	Opening Huseyin Atakan Varol <i>Dean of the School of Computing and AI & Director of ISSAI</i> Durvudkhan Suragan <i>Professor, Vice Dean of the School of Computing and AI</i>
9:20–10:10	PLENARY TALKS Moderator: Durvudkhan Suragan Secretary: Aizhan Tulendinova Prof. Peter Richtárik KAUST, Saudi Arabia <i>The Broximal Point Method and Its Impact on Optimization Theory and Machine Learning</i>
10:10–11:00	Prof. Jong Chul Ye KAIST, Korea <i>Guiding Diffusion and Flow Models for Constrained Sampling (Online)</i>
11:00–11:20	Coffee Break
11:20–12:10	Moderator: Atakan Varol Secretary: Serzhan Bassarov Prof. Enrique Zuazua Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany <i>Machine Learning from an Applied Mathematician's Perspective (Online)</i>
12:10–13:00	Prof. Bohyung Han Seoul National University, South Korea <i>What Long Video Generation Needs: Photorealism, Physical Consistency, and Semantic Fidelity</i>
13:00–13:10	Group Photo <i>Secretary: Saida Duisembayeva</i>
13:10–14:30	Lunch



DETAILED PROGRAM

DAY-BY-DAY SCHEDULE

WEDNESDAY, SEPTEMBER 9

Afternoon Program | Senate Hall, Block 1

Time	Session
14:30–15:00	SESSION TALKS Moderator: Makhmud Sadybekov Secretary: Olzhas Yesken Phillip Kingston AppliedAI, UAE <i>Proof-Carrying Streamed Workflow Graphs: Decidable Viability, Safe Admission, and Memory Bounds</i>
15:00–15:15	Viktor Verbovskiy Institute of Mathematics and Mathematical Modeling, Kazakhstan <i>Context-Dependent Sign Structures: A Mathematical Model of Meaning</i>
15:15–15:30	Abdurakhmon Sadiev KAUST, Saudi Arabia <i>Ringmaster LMO: Asynchronous Linear Minimization Oracle Momentum Method</i>
15:30–15:45	Madiyar Kairolla Institute of Smart Systems and Artificial Intelligence, Kazakhstan <i>Mamba State-Space Model for Sequential Wi-Fi Indoor Localization</i>
15:45–16:00	Nuraiym Bukanay Farabi University; Institute of Mathematics and Mathematical Modelling, Kazakhstan <i>Asymptotics of a Doubly Singularly Perturbed Third-Order BVP with Piecewise Constant Argument</i>
16:00–16:15	Medet Jumadildayev Nazarbayev University, Kazakhstan <i>Enumeration of perfect matchings in line graphs</i>
16:15–16:30	Ansar Zeinulla Nazarbayev University, Kazakhstan <i>Solving Bestemshe and Mapping Togyzkumalak to Benchmark Neural Decay</i>
16:30–17:00	Coffee Break
17:00–17:45	WORKSHOP Vladimir Albrekht Data Scientist <i>Workshop (Part 1): RYÖTENKAI — One-Shot Domain Expansion for Walkable 3D Worlds</i>
17:45–18:30	Vladimir Albrekht Data Scientist <i>Workshop (Part 2): RYÖTENKAI — One-Shot Domain Expansion for Walkable 3D Worlds. Practical Session</i>



DETAILED PROGRAM

DAY-BY-DAY SCHEDULE

THURSDAY, SEPTEMBER 10

Block 3, Room E220 | Nazarbayev University

Time	Session
9:00–9:50	PLENARY TALKS Moderator: Mukhammad Asad Zaighum Secretary: Almat Orazbayev Prof. Rustem Takhanov Nazarbayev University, Kazakhstan <i>Lessons from AI-Empowered Attacks on the Kissing Number Problem</i>
9:50–10:40	Prof. Amir Mosavi Óbuda University; J. Selye University, Hungary / Slovakia <i>Toward Holistic Trustworthy AI: Challenges for a Comprehensive Responsible AI</i>
10:40–11:30	Moderator: Viktor Verbovskiy Secretary: Aizhan Tulendinova Prof. Zhenisbek Assylbekov Purdue University Fort Wayne, USA <i>How Machine Learning Research Evolves: Lessons from a Deep LDA Project (Online)</i>
11:30–12:00	Coffee Break
12:00–13:00	WORKSHOP Dr. Adilet Otemissov <i>Workshop 1 — Optimization for Data Science: From Gradient Descent to Machine Learning Applications</i> How do we train models? Practical Session
13:00–14:30	Lunch



DETAILED PROGRAM

DAY-BY-DAY SCHEDULE

THURSDAY, SEPTEMBER 10

Afternoon Program | Nazarbayev University

Time	Session
Block C3, Room 2001	
14:30–15:00	WORKSHOP Dr. Adilet Otemissov <i>Workshop 1 — Optimization for Data Science: From Gradient Descent to Machine Learning Applications</i> How do we train models? Practical Session
15:00–16:00	Dr. Adilet Otemissov <i>Workshop 2 — Mathematics of High-Dimensional Data: From PCA to Modern Embeddings</i> How do we discover and exploit low-dimensional structure?
16:00–16:30	Coffee Break
16:30–16:45	SESSION TALKS Moderator: Yerbol Absalyamov Secretary: Sonia Khan Madi Omarov Buketov Karaganda National Research University, Kazakhstan <i>Variable-order fractional diffusion equation in non-canonical domains</i>
16:45–17:00	Kaisar Tulenbaev Institute of Mathematics and Mathematical Modeling, Kazakhstan <i>Automatic horse recognition in images using convolutional neural networks</i>
17:00–17:15	Minzilya Kosmakova Buketov Karaganda National Research University, Kazakhstan <i>Explicit solution and well-posedness for a fractional PDE with a loaded term along a moving curve</i>
17:15–17:30	Emil Huseynov Baku State University, Azerbaijan <i>How Many Items Does a Benchmark Need When Its Items Come in Clusters?</i>
17:30–17:45	Ismayil Zeynalov Baku State University, Azerbaijan <i>Decomposing Prompt-Format Sensitivity: Extraction Artifacts, Reasoning Suppression, and Surface Form</i>
17:45–18:00	Gunel Babayeva Baku State University, Azerbaijan <i>A Packing Ceiling for Colour-Vision-Deficiency-Safe Categorical Palettes</i>
18:00–18:15	Nihat Garibli Baku State University, Azerbaijan <i>What Does a Certified Self-Consistent Answer Certify?</i>
18:15–18:30	Miraga Aliyev Baku State University, Azerbaijan <i>Test-Time Budgets Are a Knapsack, Not a Water-Filling Problem</i>
18:30–18:45	Nurmukhamed Zibatkaliyev Desargues, Kazakhstan <i>Toward Verified Intelligence: A Survey of AI for Mathematics</i>
18:45–19:00	Yernat Assylbekov Super Dispatch, Kazakhstan <i>The Geodesic Ray Transform with Finite Measurements: Stability, Reconstruction, and DeepONets</i>
19:00–19:40	Coffee Break, Networking, and Brainstorming at the University Club (Block C2, 2nd Floor)

DETAILED PROGRAM

DAY-BY-DAY SCHEDULE

FRIDAY, SEPTEMBER 11

Block C3, Room 2001 | Nazarbayev University

Time	Session
9:00–9:50	WORKSHOP Auyeskhan Alibekov Data Scientist <i>Workshop: Beyond Requests — Scalable Data Scraping</i>
9:50–10:40	Auyeskhan Alibekov Data Scientist <i>Workshop: Beyond Requests — Scalable Data Scraping</i> Practical Session
10:40–11:30	Akylbek Maxutov Senior Data Scientist <i>Workshop: How Do We Actually Know an AI Agent Is Good at Math?</i>
11:30–12:00	Coffee Break
12:00–12:45	Akylbek Maxutov Senior Data Scientist <i>Workshop: How Do We Actually Know an AI Agent Is Good at Math?</i> Practical Session
12:45–14:00	Lunch
14:00–14:15	SESSION TALKS Moderator: Aibat Yeshkeev Secretary: Serzhan Bassarov Kazybek Baktybergen Nazarbayev University School of Medicine, Kazakhstan <i>Categorizing Factors Influencing Hip-Fracture Care Standards for Causal Diagrams</i>
14:15–14:30	Daliya Kaskirbayeva MNU, Kazakhstan <i>Comparative Evaluation and External Validation of Machine Learning Models for Length-of-Stay Prediction: A Kazakhstan Case Study</i>
14:30–14:45	Zhebey Fazyl L.N. Gumilyov Eurasian National University, Kazakhstan <i>Stability Properties of Pseudofinite Abelian Groups</i>
14:45–15:00	Zhuldyz Yeskabylova L.N. Gumilyov Eurasian National University, Kazakhstan <i>Coercive solvability conditions for a nonlinear third-order singular differential equation in Lebesgue space</i>
15:00–15:15	Aibat Yeshkeyev, Aigul Issayeva Buketov Karaganda National Research University, Kazakhstan <i>The fractal of Jonsson theory and online learning</i>
15:15–16:15	Session Talks (continued)
16:15–16:45	Coffee Break
16:45–18:15	Session Talks & Closing

Thank You for Joining CMAI 2026!

If you have any questions or need assistance during the event, please contact the organizing team.

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