TSEREN-ONOLT ISHDORJ

Ph.D. in Computer Science

Professor of Computer Science

CURRICULUM VITAE

CONTACT INFORMATION

Department of Computer Science
School of Information and Communication Technology
Mongolian University of Science and Technology
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EDUCATION

Sevilla University, Seville, Spain
Department of Computer Science and Artificial Intelligence

Ph.D. in Computer Science, 2007

- Thesis Topic: "Membrane Computing, Neural Inspirations, Gene Assembly in Ciliates"
  Supervisors: Dr. Gheorghe Păun and Dr. Mario J. Pérez-Jiménez

National University of Mongolia, Ulaanbaatar, Mongolia

M.S. in Mathematics, 1998

National University of Mongolia, Ulaanbaatar, Mongolia

B.S. in Mathematics, 1994

RESEARCH INTERESTS

Theory of Computation, Natural/Biocomputing, Artificial Intelligence, Computational Systems Biology, Bioinformatics, Computer Modelling and Simulation, Microfluidic Systems/Biochip Design Development, Software Engineering Formal Methods.

WORK EXPERIENCES

Professor **2022 – present**
Department of Computer Science, School of Information and Communication Technologies, Mongolian University of Science and Technology, Ulaanbaatar, Mongolia

Associate Professor **2018 – 2021**
Department of Computer Science, School of Information and Communication Technologies, Mongolian University of Science and Technology, Ulaanbaatar, Mongolia

Senior Lecturer **2016 – 2017**
Department of Computer Science, School of Information and Communication Technologies, Mongolian University of Science and Technology, Ulaanbaatar, Mongolia

Manager for R&D **2014 – 2015**
Project Unit "Coal to Natural Gas/SNG", Ministry of Mining of Mongolia, Ulaanbaatar, Mongolia

Head **2011 – 2014**
Department of Risk Assessment and New Financial Products, Financial Regulatory Commission of Mongolia, Ulaanbaatar.

Head **2000 – 2002**
Department of Network and Information Systems, School of Information Technology and Computer

Science, The State Pedagogical University of Mongolia, Ulaanbaatar.

Lecturer **1994 – 2000**
Department of Computer Science, Faculty of Mathematics, The State Pedagogical University of Mongolia, Ulaanbaatar.

Academic Experiences

Visiting researcher **May – August, 2011**
VTT Technical Research Centre of Finland, Medical Biotechnology Center, Turku, Finland
Topic: *Computational Systems Biology.* Advisor: Dr. Matthias Nees

Visiting researcher **February – May, 2011**
Department of Computer Science, Missouri University of Science and Technology, Rolla, MO, USA
Topic: *Bio-informatics.* Host: Professor Fikret Ercal

Visiting researcher **July – September, 2008**
Department of Control Science and Engineering, Huazhong University of Science and Technology, Whuhan, China
Topic: *Biocomputing.* Host: Professor Linqiang Pan

Post-doctoral researcher **January 2007 – February 2010**
Department of Information Technologies, Åbo Akademi University, Turku, Finland
Topic: *Computational Aspects of Gene Assembly in Ciliates, Membrane systems, Systems Biology.*
Supervisors: Professor Ion Petre and Professor Ralph-Johan Back

Ph.D. candidate **June 2005 – March 2007**
Department of Computer Science and Artificial Intelligence,
Seville, Spain
Topic: *Theory of Computation, Natural Computing.*

Ph.D. student **March 2003 – June 2005**
International PhD School in Formal Languages and Applications, Rovira i Virgili University, Tarragona, Spain
Topic: *Formal Language Theory and Applications, Theory of Computation, Natural Computing.*

Visiting Research Student **May – October 2006**
Department of Information Technologies, Åbo Akademi University, Turku, Finland
Topic: *Biocomputing.* Supervisor: Dr. Ion Petre

Training course **March – August 2001**
TATA InfoTech. Co Ltd., New Delhi, India
Topic: *Web Centric Technology.*

Fellow **May – October 1999**
International Institute for Software Technology, United Nations University UNU-IIST, Macau, SAR China
Topic: *Software Engineering Formal Methods.* Supervisor: Dr. Richard Moore

Trainee **March – June 1996**
Vocational Training Center, Taipei, Taiwan
Topic: *Programming Languages.*

Honors and Awards

Second Place Award for Exceptional Researcher, academic year of 2018-2019, **04 October, 2019**
Mongolian University of Science and Technology, Ulaanbaatar, Mongolia

Exceptional Doctorate Award for the Scientific Area 2006/2007, **10 February, 2009**
Sevilla University, Seville, Spain

Winner of the First place Award in Educational category **23 September, 2009**

Competition for Modelling Biological Systems organized by Plectix Biosystems, Inc., USA

Visiting Scholar Award **1 July – 1 September, 2008**
Huazhong University of Science and Technology, Whuhan, China

Visiting Scholar Grant of Centre for International Mobility CIMO Finland **May – October, 2006**
Åbo Akademi University, Turku, Finland

BETS PAPER AWARD **December, 2018**
ACMC2018, Auckland, New Zealand

Research Projects Acquired

Principal Investigator

1. Research Grant: Joint-Research Project *"Rapid screening of COVID-19 using Simultaneous Surface-Enhanced Raman Scattering Nano-sensors and Deep Learning"*, 2022/2024, funded by Mongolian Foundation of Science and Technology and Taiwan Ministry of Science and Technology.
2. Research Grant: Joint-Research Project *"Research on Intelligent Prediction Model of Synergistic Drug Combinations based on Multi-data Fusion (anti-echinococcosis)"*, 2020-2023, funded by Mongolian Foundation of Science and Technology.
3. Research Grant: Joint-Research Project *"Surface-enhanced Raman scattering (SERS) detection of bacteria in microfluidic Dielectrophoresis (DEP)"*, 2017/2020, funded by Mongolian Foundation of Science and Technology and Taiwan Ministry of Science and Technology.
4. Research Grant: Research Project *"Natural computing: A study of membrane computing implementation for parallel architecture and application of gene assembly in cryptanalysis"*, 2018/2019, funded by Mongolian Foundation of Science and Technology.
5. Project Grant: *"MUST Academic Tenure Track Career System Model"*, 2023/2024, funded by Mongolian Univ. of Science and Technology.
6. Research Grant: *"Mathematical modelling and computer simulation of a Biosystem: HSR"*, 2018/2019, funded by School of ICT, MUST.

Supervised PhD students

- Ganbat Ganbaatar, PhD in Computer Science, 2021
- Otgonnaran Ochirbat, PhD in Computer Science, 2022

Scientific Responsibility

- OC Chair of the 20th Inter. Conference on Membrane Computing (ICMC2020), 14–17 Sept., 2020.
- Member of Association for Computing Machinery (ACM)
- Member of Association for Computing Machinery (IEEE)
- Member of European Association for Theoretical Computer Science (EATCS)
- Member of Bulletin Committee of the International Membrane Computing Society (IMCS)
- Member of Editorial Board of Scientific Counsel, School of ICT, Mongolian University of Science and Technology
- Referee for many articles submitted to international and domestic conferences and journals
- In PC: Annual Asian Chapter of Conference on Membrane Computing ACMC

Scientific Conference Talks

- 3rd Int. Conf. on Applied Sciences and Engineering (ICASE) (Plenary Speaker) — 16-17th June, 2023
  Mongolian Univ. of Sci. and Tech — Ulaanbaatar, Mongolia
- 23th Int. Conf. on Miniaturized Systems for Chemistry and Life Sciences(μTAS 2019) (Poster) — 27-31 August, 2019
  ETH Zurich, IBM Research - Zurich — Basel, Switzerland
- 20th International Conference on Membrane Computing — 08/07/2019,
  (Invited Speech) — Curtea de Arges, Romania
- 7th Asian Chapter of Conference on Membrane Computing — 12/12/2018,
  University of Auckland — Auckland, New Zealand
- Conference on Mongolian Information Technology - 2018 — 05/04/2018,
  National University of Mongolia — Ulaanbaatar, MN
- Conference on Mongolian Information Technology -2017 — 05/03/2017,
  Mongolian University of Science and Technology — Ulaanbaatar, MN
- Workshop on ICT Development in Mongolia — 04/13/2016,
  Mongolian University of Science and Technology, SICT — Ulaanbaatar
- Workshop on Natural Computing and Graph Transformations — 8 September, 2008,
  Leicester University — Leicester, UK
- Workshop on Frontiers of IT, Applications and Tools (FITAT) — 15–17 August, 2008
  (Invited speech) — Ulaanbaatar, Mongolia
- Workshop on Computational Models for Cell Processes — 25–27 May, 2008
  Åbo Akademi University — Turku, Finland
- 6th International Conference on Unconventional Computing UC'07 — 13–17 August, 2007
  Queen's University — Kingston, Canada
- Workshop on Language Theory of Biocomputing under UC'07 — 13–17 August, 2007
  Queen's University — Kingston, Canada
- International Conference on Computability in Europe CiE'07 — 18–23 June, 2007
  Siena University — Siena, Italy
- Int. Conference on Electronics, Information, and Communication — 27–28 June, 2006
  Mongolian University of Science and Technology — Ulanbator, Mongolia
- The 8th Int. Work-Conference on Artificial Neural Networks 2005 — 8-10 June, 2005
  (Computational Intelligence and Bioinspired Systems)
  Universidad Politécnica de Catalúa — Barcelona, Spain
- Int. Colloquium on Theoretical Aspects of Computing ICTAC2004 — 20-24 Sept., 2004
  UNU-IIST — Guiyang, China
- The 2002 Int. Conf. on Software Engineering Research and Practice — 24-27 June, 2002
  (Poster) — Las-Vegas, USA
- The 2002 Int. Conf. on Information and Knowledge Engineering — 24-27 June, 2002
  The University of Georgia — Las-Vegas, USA
- Conf. on Impl. Results of Education Sector Development Program — 23 September, 2002
  ADBank, MECS of Mongolia — Ulaanbaatar, Mongolia
- Regional Workshop on Education Software and Computer Science Curriculum Development — July, 2000
  UNESCO Beijing office, UNU-IIST — Beijing, China

PUBLICATIONS

Tseren-Onolt Ishdorj

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1 International Journal Articles

1.1 WoS, Scopus indexed journals

[1] Kaladharan, Kiran, Chen, Kuan-Hung, Chen, Pin-Han, Goudar, Venkanagouda S., **Ishdorj, Tseren-Onolt**, Santra, Tuhin Subhra **and** Tseng, Fan-Gang. **2023c**. "Dual-clamped one-pot SERS-based biosensors for rapid and sensitive detection of SARS-CoV-2 using portable Raman spectrometer". **in***Sensors and Actuators B: Chemical,* **IF 8.4**: 393, **page** 134172. ISSN: 0925-4005. DOI: https://doi.org/10.1016/j.snb.2023.134172. URL: https://www.sciencedirect.com/science/article/pii/S0925400523008870.

[2] Chen, Kuan-Hung, Lee, Shih-Han, Kok, Li-Ching, **Ishdorj, Tseren-Onolt**, Chang, Hwan-You **and** Tseng, Fan-Gang. **february 2022**. "A 03D-ACEK/SERS system for highly efficient and selectable electrokinetic bacteria concentration/ detection/ antibiotic-susceptibility-test on whole blood". **in***Biosensors and Bioelectronics,* **IF 12.545**: 197, **page** 113740. ISSN: 0956-5663. DOI: https://doi.org/10.1016/j.bios.2021.113740. URL: https://www.sciencedirect.com/science/article/pii/S0956566321007776.

[3] Ganbaatar, Ganbat, Nyamdorj, Dugar, Cichon, Gordon **and Ishdorj, Tseren-Onolt**. **march 2021**. "Implementation of RSA cryptographic algorithm using SN P systems based on HP/LP neurons". **in***Journal of Membrane Computing*: 3.1, **pages** 22–34. ISSN: 2523-8914. DOI: 10.1007/s41965-021-00073-3. URL: https://doi.org/10.1007/s41965-021-00073-3.

[4] Chen, Kuan-Hung, Pan, Meng-Ju, Jargalsaikhan, Zoljargal, **Ishdorj, Tseren-Onolt and** Tseng, Fan-Gang. **october 2020**. "Development of Surface-Enhanced Raman Scattering (SERS)-Based Surface-Corrugated Nanopillars for Biomolecular Detection of Colorectal Cancer". **in***Biosensors* **IF 5.743**: 10.11, **pages** 163–176. ISSN: 2079-6374. DOI: 10.3390/bios10110163. URL: https://www.mdpi.com/2079-6374/10/11/163.

[5] **Ishdorj, Tseren-Onolt**, Ochirbat, Otgonnaran **and** Naimannaran, Chuluunbandi. **january 2020**. "A μ-fluidic Biochip Design for Spiking Neural P Systems". **in***International Journal of Unconventional Computing* **IF 0.973**: 15.1, **pages** 59–82.

[6] Ochirbat, Otgonnaran, **Ishdorj, Tseren-Onolt and** Cichon, Gordon. **march 2020**. "An error-tolerant serial binary full-adder via a spiking neural P system using HP/LP basic neurons". **in***Journal of Membrane Computing*: 2.1, **pages** 42–48. ISSN: 2523-8914. DOI: 10.1007/s41965-020-00033-3. URL: https://doi.org/10.1007/s41965-020-00033-3.

[7] **Ishdorj, Tseren-Onolt**, Leporati, Alberto, Pan, Linqiang, Zeng, Xiangxiang **and** Zhang, Xingyi. **2010b**. "Deterministic solutions to QSAT and Q3SAT by spiking neural P systems with pre-computed resources". **in** *Theoretical Computer Science* **IF 1.002**: 411.25, **pages** 2345–2358.

[8] Chen, Haiming, Ionescu, Mihai, **Ishdorj, Tseren-Onolt**, Păun, Andrei, Păun, Gheorghe **and** Pérez-Jiménez, Mario J. **2008c**. "Spiking neural P systems with extended rules: universality and languages". **in** *Natural Computing* **IF 1.504**: 7.2, **pages** 147–166.

[9] **Ishdorj, Tseren-Onolt and** Leporati, Alberto. **2008f**. "Uniform solutions to SAT and 3-SAT by spiking neural P systems with pre-computed resources". **in** *Natural Computing* **IF 1.504**: 7.4, **pages** 519–534.

[10] **Ishdorj, Tseren-Onolt**, Loos, Remco **and** Petre, Ion. **2008g**. "Computational efficiency of intermolecular gene assembly". **in** *Fundamenta Informaticae* **IF 1.166**: 84.3-4, **pages** 363–373.

[11] **Ishdorj, Tseren-Onolt and** Petre, Ion. **2008i**. "Gene assembly models and boolean circuits". **in***International Journal of Foundations of Computer Science* **IF 0.662**: 19.05, **pages** 1133–1145.

[12] Haiming, Chen, **Ishdorj, Tseren-Onolt and** Păun, Gheorghe. **2007b**. "Computing along the axon". **in***Progress in Natural Science*: 17.4, **pages** 417–423.

[13] **Ishdorj, Tseren-Onolt**, Petre, Ion **and** Rogojin, Vladimir. **2007g**. "Computational power of intramolecular gene assembly". **in***International Journal of Foundations of Computer Science* **IF 0.662**: 18.05, **pages** 1123–1136.

[14] Pan, Linqiang, Alhazov, Artiom **and** Isdorj, Tseren-Onolt. **september 2005**. "Further remarks on P systems with active membranes, separation, merging, and release rules". **in***Soft Computing* **IF 3.732**: 9.9, **pages** 686–690. ISSN: 1433-7479. DOI: 10.1007/s00500-004-0399-y. URL: https://doi.org/10.1007/s00500-004-0399-y.

1.2 Peer-to-peer reviewed journals

[15] Avirmed, Altankhuyag, Erdenedalai, Uranchimeg, Erdenechimeg, Selenge, Su, Yansen **and Ishdorj, Tseren-Onolt**. **2022a**. "Biomolecular Network-based Study of a Parasitic Disease and Therapeutic Drugs". **in***ICT Focus*: 1.1, **pages** 22–34.

[16] Alhazov, Artiom **and Ishdorj, Tseren-Onolt**. **2011**. "Bio-inspired Membrane Operations in P Systems with Active Membranes". **in***Triangle*: 6, **pages** 19–28.

[17] Cheng, Haiming, **Ishdorj, Tseren-Onolt**, Păun, Gheorghe **and** Pérez Jiménez, Mario de Jesús. **2007a**. "Handling languages with spiking neural P systems with extended rules". **in***Romanian Journal of Information Science and Technology (ROMJIST)*: 9.3, **pages** 151–162.

2 Monographs

[18] **Ishdorj, Tseren-Onolt**. **june 2022**. "Computation Inspired by Biology: Theory and Implementation". [In English]. Monograph. Ulaanbaatar, Mongolia: Mongolian University of Science **and** Technology.

[19] **Ishdorj, Tseren-Onolt**. **march 2007**. "Membrane computing, neural inspirations, gene assembly in Ciliates". [In English]. Premio Extraordinario de Doctorado US. *Ph.D. thesis.* Monograph. Seville, Spain: Universidad de Sevilla.

3 Books

[20] Freund, Rudolf, **Ishdorj, Tseren-Onolt**, Rozenberg, Grzegorz, Salomaa, Arto **and** Zandron, Claudio, **editors**. **june 2021**. *Membrane Computing. 21st International Conference, CMC 2020, Virtual Event, September 14–18, 2020, Revised Selected Papers.* **volume** 12687. LNCS. Ulaanbaatar **and** Vienna: Springer Nature, **pages** XI, 179. ISBN: 978-3-030-77101-0. DOI: https://doi.org/10.1007/978-3-030-77102-7.

[21] Sodov, Enkhbold, Sereeter, Lodoisamba **and Ishdorj, Tseren-Onolt**. **2008j**. *Oxford dictionary of the Internet - English-Mongolian dictionary.* **byeditor**Erdenechimeg Myatav **and** Munkh-Uchral Enkhtur. Ulaanbaatar: Monsudar Printing.

[22] Цэрэн-Онолт, Ишдоржийн. **1999b**. *Програмчлалын Си хэл.* **volume** 1. Улаанбаатар: Нью майнд.

[23] Цэрэн-Онолт, Ишдоржийн. **1999c**. *Програмчлалын Си хэл.* **volume** 2. Улаанбаатар: Нью майнд.

4 Manuals

[28] Цэрэн-Онолт, Ишдоржийн **and** Долгорсүрэн, Батжаргалын. **2023h**. *Тооцоолох Биологи.* [Монгол]. Гарын авлага 1. ШУТИС.

5 In conference proceedings

5.1 In peer-to-peer reviewed conference proceedings

[24] Avirmed, Altankhuyag, Batjargal, Dolgorsuren, Dorjsuren, Temuulen, Su, Yansen **and Ishdorj, Tseren-Onolt**. **2023a**. "Synergistic drug combination study with multi-omics data integration". [In English]. **in***Mongolian University of Science and Technology*: June, 2023, ICASE, Ulaanbaatar. MUST.

[25] Nyamdavaa, Ankhbayar, Kaladharan, Kiran, Ganbold, Erdene-Ochir, Tseng, Fan-Gang **and Ishdorj, Tseren-Onolt**. **2023e**. "A CNN model for SERS spectra detection of SARS-CoV-2 proteins". [In English]. **in***Mongolian University of Science and Technology*: June, 2023, ICASE, Ulaanbaatar. MUST.

[26] Su, Yansen, Wang, Pengpeng, Cui, Shuna, Xu, Fei **and Ishdorj, Tseren-Onolt**. **2023f**. "BIJE: A Joint Extraction Model for Biomedical Information Extraction". **in***Advanced Intelligent Computing Technology and Applications*: **byeditor**De-Shuang Huang, Prashan Premaratne, Baohua Jin, Boyang Qu, Kang-Hyun Jo **and** Abir Hussain. Singapore: Springer Nature Singapore, **pages** 119–130. ISBN: 978-981-99-4749-2.

[27] Tan, Dayu, Yang, Yang, Wang, Minglu, Wang, Pengpeng, Zhang, Lejun, **Ishdorj, Tseren-Onolt and** Su, Yansen. **2023g**. "Extraction of Relationship Between Esophageal Cancer and Biomolecules Based on BioBERT". **in***Advanced Intelligent Computing Technology and Applications*: **byeditor**De-Shuang Huang, Prashan Premaratne, Baohua Jin, Boyang Qu, Kang-Hyun Jo **and** Abir Hussain. Singapore: Springer Nature Singapore, **pages** 106–118. ISBN: 978-981-99-4749-2.

[28] Ganbaatar, Ganbat, Altangerel, Khuder **and Ishdorj, Tseren-Onolt**. **2018a**. "Solving NP Hard Problems in the Framework of Gene Assembly in Ciliates". **in***Bio-inspired Computing: Theories and Applications*: **byeditor**Jianyong Qiao, Xinchao Zhao, Linqiang Pan, Xingquan Zuo, Xingyi Zhang, Qingfu Zhang **and** Shanguo Huang. Singapore: Springer Singapore, **pages** 107–119. ISBN: 978-981-13-2826-8.

[29] **Ishdorj, Tseren-Onolt**, Leporati, Alberto, Pan, Linqiang **and** Wang, Jun. **2010a**. "Solving NP-Complete Problems by Spiking Neural P Systems with Budding Rules". **in***Membrane Computing*: **byeditor**Gheorghe Păun, Mario J. Pérez-Jiménez, Agustín Riscos-Núñez, Grzegorz Rozenberg **and** Arto Salomaa. Berlin, Heidelberg: Springer Berlin Heidelberg, **pages** 335–353. ISBN: 978-3-642-11467-0.

[30] Back, Ralph-Johan, **Ishdorj, Tseren-Onolt and** Petre, Ion. **september 2008**. "A Petri-net formalization of heat shock response model". **in***Workshop on Natural Computing and Graph Transformations*: **byeditor**Ion Petre **and** Grzegorz Rozenberg. Leicester, UK, **pages** 19–27.

[31] **Ishdorj, Tseren-Onolt and** Petre, Ion. **2007e**. "Computing Through Gene Assembly". **in***Unconventional Computation*: **byeditor**Selim G. Akl, Cristian S. Calude, Michael J. Dinneen, Grzegorz Rozenberg **and** H. Todd Wareham. Berlin, Heidelberg: Springer Berlin Heidelberg, **pages** 91–105. ISBN: 978-3-540-73554-0.

[32] **Ishdorj, Tseren-Onolt**. **2006d**. "Minimal Parallelism for Polarizationless P Systems". **in***DNA Computing*: **byeditor**Chengde Mao **and** Takashi Yokomori. Berlin, Heidelberg: Springer Berlin Heidelberg, **pages** 17–32. ISBN: 978-3-540-68423-7.

[33] Cavaliere, Matteo, Ionescu, Mihai **and Ishdorj, Tseren-Onolt**. **2005b**. "Inhibiting/De-inhibiting Rules in P Systems". **in***Membrane Computing*: **byeditor**Giancarlo Mauri, Gheorghe Păun, Mario J. Pérez-Jiménez, Grzegorz Rozenberg **and** Arto Salomaa. Berlin, Heidelberg: Springer Berlin Heidelberg, **pages** 224–238. ISBN: 978-3-540-31837-8.

[34] Ionescu, Mihai **and Ishdorj, Tseren-Onolt**. **2005c**. "Boolean Circuits and a DNA Algorithm in Membrane Computing". **in***Proceedings of the 6th International Conference on Membrane Computing*: WMC'05. Vienna, Austria: Springer-Verlag, **pages** 272–291. ISBN: 3540309489. DOI: 10.1007/11603047_19. URL: https://doi.org/10.1007/11603047_19.

[35] Martín-Vide, Carlos **and Ishdorj, Tseren-Onolt**. **2005d**. "Modeling Neural Processes in Lindenmayer Systems". **in***Computational Intelligence and Bioinspired Systems*: **byeditor**Joan Cabestany, Alberto Prieto **and** Francisco Sandoval. Berlin, Heidelberg: Springer Berlin Heidelberg, **pages** 145–152. ISBN: 978-3-540-32106-4.

[36] **Ishdorj, Tseren-Onolt and** Ionescu, Mihai. **2004b**. "Replicative - Distribution Rules in P Systems with Active Membranes". **in***Theoretical Aspects of Computing - ICTAC 2004, First International Colloquium, Guiyang, China, September 20-24, 2004, Revised Selected Papers*: **byeditor**Zhiming Liu **and** Keijiro Araki. **volume** 3407. Lecture Notes in Computer Science. Springer, **pages** 68–83. DOI: 10.1007/978-3-540-31862-0_7. URL: https://doi.org/10.1007/978-3-540-31862-0%5C_7.

5.2 In not peer-to-peer reviewed conference proceedings

[37] Avirmed, Altankhuyag, Batjargal, Dolgorsuren **and Ishdorj, Tseren-Onolt**. **2023b**. "A multi-omics data integraction approach for drug repurposing". [In English]. **in***Scientific Transactions of Mongolian University of Science and Technology*: April, 2023, MUST Scientific research workshop. MUST.

[38] Nyamdavaa, Ankhbayar, Bayarsaikhan, Anudari, Ganbold, Erdene-Ochir **and Ishdorj, Tseren-Onolt**. **2023d**. "Deep learning based SERS detection model development for COVID-19". [In English]. **in***Scientific Transactions of Mongolian University of Science and Technology*: April, 2023, MUST Scientific research workshop. MUST.

[39] Уранчимэг, Эрдэнэдалай **and** Цэрэн-Онолт, Ишдорж. **2022d**. "Био-молекулан харилцан үйлчлэлийн сүлжээ, чанарын шинжилгээ". [Монгол]. **in***ШУТИС-ийн ЭШХ-ын эмхэтгэл*: 2022/6, ШУТИС-ЭШХ. ШУТИС.

[40] Ганбат, Г. **and** Цэрэн-Онолт, И. **2020d**. "Био-молекулан тооцооллын системд крипто алгоритм хэрэгжүүлэх тухай". [Монгол]. **in***InfoNet&Sec-2020 ЭШ-ний Хурлын Эмхэтгэл*: 7/267. ШУТИС, **pages** 54–57.

[41] Ганбат, Г., Цэрэн-Онолт, И. **and** Эрдэнэбаатар, А. **2019**. "Био-молекулан тооцооллын системд арифметик үйлдлүүд гүйцэтгэх нь". [Монгол]. **in***ШУТИС ЭШ-ний Бүтээлийн Эмхэтгэл*: 3/263. ШУТИС, **pages** 166–171.

[42] Азбаяр, Б., Золжаргал, Ж. **and** Цэрэн-Онолт, И. **2018b**. "Микросувгаар урсах шингэн дэх эгэл хэсгийг диэлектрофорезын аргаар ялгах загвар ба симуляц". [Монгол]. **in***ШУТИС - Эрдэм шинжилгээний бичиг - 2018*: ШУТИС.

[43] Ганбат, Г., Хүдэр, А. **and** Цэрэн-Онолт, И. **2018c**. "Тооцооллын хүнд бодлогыг биоалгоритмаар шийдэх". [Монгол]. **in***21-р зуун - Өрсөлдөөн ба бүтээлч байдал*: Монголын Мэдээллийн Технологи/MMT2018- Хиймэл оюун, ЭШХ-ын эмхтгэл. Монгол Улсын Их Сургууль, **pages** 88–93.

[44] **Ishdorj, Tseren-Onolt**, Enkhtuya, Baatarkhuu **and** Ragchaabazar, Choisuren. **november 2017**. "Petri net based cluster and reachability analysis of the heat shock response in eukaryotes". **in***MMT2007*: Ulaanbaatar, Mongolia, **pages** 68–75.

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