Csaba Kerepesi

Curriculum Vitae

University education

2001-2008 **Diploma in Mathematics**, *University of Szeged, Hungary*.
Thesis title: Hypercyclic Operator Semigroups. Supervisor: Prof. László Kérchy. (Diploma awarded: 2009)

2013-2016 **PhD in informatics**, *Eötvös Loránd University*, Budapest, Hungary.
Thesis title: Data Mining in Genomics, Metagenomics and Connectomics. Supervisor: Prof. Vince Grolmusz (PhD awarded: 2018)

Research positions

2016-2019 **Research associate/fellow**, *Data mining and search group, Institute for Computer Science and Control (MTA SZTAKI), Hungarian Academy of Sciences*, Budapest, Hungary.

2019-2021 **Research fellow**, *Gladyshev lab, Brigham and Women's Hospital, Harvard Medical School*, Boston, MA, USA.

2021- **Research fellow**, *Informatics Laboratory, Institute for Computer Science and Control (SZTAKI), Eötvös Loránd Research Network*, Budapest, Hungary.

Grants as a PI

2024– **"OTKA" Young Researchers' Excellence Programme 2023 (FK 23)**, *National Research, Development and Innovation Office (NKFIH)*, "Determination of biological age by the help of artificial intelligence", HUN-REN SZTAKI.
4 years, 44 million HUF

Awards

2016 **Scientific Award of Young Scientists**, *Faculty of Informatics, Eötvös Loránd University, Hungary*, "For his outstanding scientific work".

2017 **Gyula Farkas memorial prize**, *János Bolyai Mathematical Society, Hungary*, "For his work in the field of applied mathematics".

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2018 **Institutional publication award of young scientists**, Institute for Computer Science and Control, Hungarian Academy of Sciences.

2019 **Institutional award**, Institute for Computer Science and Control, Hungarian Academy of Sciences.

Scholarships

2013-2016 **State scholarship for doctoral students**, *Faculty of Informatics, Eötvös Loránd University, Hungary*, "Data mining in metagenomics and brain research".
6 semesters

2015-2016 **Regular scientific and professional scholarship**, *Faculty of Informatics, Eötvös Loránd University, Hungary*.
3 semesters

2018 **EFOP scientific scholarship**, *Faculty of Informatics, Eötvös Loránd University, Hungary*, "Machine learning methods for chronological age prediction".
1 semester

Scientific publication statistics

No. peer-reviewed research papers: 34

No. first author or co-first author papers: 19

No. of corresponding author papers: 4

No. of last author papers: 1

Total number of citations (Google Scholar): 1079

h-index: 19

Publication list: https://kerepesi.web.elte.hu/

PhD supervising

2023- **Enikő Zakar-Polyák**, *Information Systems Program, Doctoral School of Informatics, Faculty opf Inormatics, Eötvös Loránd University*, Az öregedés és megfiatalodás bioinformatikai aspektusai.

Teaching Experience

2013-2015 **Finite Mathematics 1**, *Department of Computer Science, Eötvös Loránd University*, Budapest, Hungary.
3 semesters

2013-2014 **Probability Theory and Statistics**, *Department of Probability Theory and Statistics, Eötvös Loránd University*, Budapest, Hungary.
2 semesters

2014-2015 **Algorithmic Issues in Bioinformatics**, *Department of Computer Science, Eötvös Loránd University*, Budapest, Hungary.
3 semesters

2016 **Combinatorics 1 (CO1) HW review**, *Budapest Semesters in Mathematics*.
1 semester

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2016-2017 **Bioinformatics**, *Department of Computer Science, Eötvös Loránd University*, Budapest, Hungary.
3 semester

2022- **Bioinformatics aspects of aging and rejuvenation**, *Faculty of Informatics, Eötvös Loránd University*, Budapest, Hungary.
2 semesters

Undergraduate thesis supervising

2023 **Nóra Szécsi**, *Computer Science BSc, Faculty of Informatics, ELTE*, Development of cell-type specific epigenetics clocks.

Supervisor in university student projects

2016 **Computational chemistry labor – supervisor**, *Institute of Chemistry, ELTE*, Budapest, Hungary, 1 student (P.K.).
1 semester

2017-2019 **Independent labor 1.-2. – supervisor**, *BME VIK*, 2 student (K.H., R.Sz.).
3 semesters

2017-2019 **Structure and Dynamics of Complex Networks – supervisor**, *Aquincum Institute of Technology*, 3 students (Y.W., K.M., R.N.).
3 semesters

2017- **Independent project professional practice I.-II. – supervisor**, *Institute of Mathematics, ELTE*, 3 students (Á.K., B.J., Z.Ú., B.B.).
3 semesters

2022- **Artificial Intelligence Specialization Project I.**, *John von Neumann Faculty of Informatics, Óbuda University*, 4 students (D.N., K.A., R.G., T.B.).
1 semester

Scientific competition results of supervised students

2018 **Eszter Zita Szatmári, Pál Vasvári Highschool, Székesfehérvár**, *Scientific conference of high school students from Carpathian-basin (TUDOK), Engineering and computer sciences*, 1st place ("Big prize"), "Analysis of amino acid sequences of ageing-related proteins".

2019 **Eszter Zita Szatmári, Pál Vasvári Highschool, Székesfehérvár**, *"Informatics science" section, "Applications in medicine and biology" subsection, National Scientific Conference of Students, Obuda University*, Special award, "Analysis of amino acid sequences of ageing-related proteins".

2023 **Iván Fejes, Computer Science BSc, Faculty of Informatics, Eötvös Loránd University**, *"Informatics science" section, Scientific Conference of Students, local competition, Faculty of Informatics, Eötvös Loránd University*, 3rd place, "Dtermination of biological age based on face photoes".

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Membership in scientific societies

2017- **Hungarian Society of Bioinformatics (MABIT)**, *Member, co-organiser of the Bioinformatics seminar*.

2021- **Hungarian Academy of Sciences (MTA)**, *Member of the public body*.

2023- **Hungarian Academy of Young Scientists (FKA)**, *Co-coordinator of the international committee*.

Membership of scientific committee

2016- **Insitutional-website committee**, *Institute of Mathematics, ELTE*, Hungary.

June 26, 2018 **External member of a final examination committee**, *MSc in Mathematics*, Institute of Mathematics, BME, Hungary.

June 18, 2019 **Member of Nina Kunsic's complex doctoral exam committee**, *Molecular Medicine of PhD Studies*, Semmelweis University, Hungary.

May 31, 2021 **Official reviewer at Zsigmond Benkő's PhD defend**, *From clustering to causality analysis: application and development of signal processing methods in a neuroscience context*, János Szentágothai Doctoral School of Neurosciences,Semmelweis University, Hungary.

July 8, 2022 **Comittee member at Tamás Balassa's PhD defend**, *Cell identification and phenotyping using classical machine learning and deep learning*, Doctoral School of Informatics, Eötvös Loránd University, Hungary.

June 30, 2023 **Official reviewer at Kristóf Takács's pre-PhD defend**, *Data mining in large biological databases*, Doctoral School of Mathematics, Eötvös Loránd Univeristy.

Invited scientific Talks

Mar 17, 2014 **Formal Reaction Kinetics Seminar**, BME, Budapest, Hungary: *Bioinformatics methods for mapping bacterial communities*

Mar 25, 2014 **Mathematics-Informatics Seminar**, Bolyai College, Budapest, Hungary: *Metagenomic analysis: bacterial community mapping using bioinformatics*

Nov 6, 2014 **Mathematics Film Club**, ELTE, Budapest, Hungary: *Mathematics of Poker*

Jan 13, 2015 **How many types of doctoral students? - Interdoctrinal lecture series**, ELTE, Budapest, Hungary: *Datamining in metagenomics and brain research*

Oct 5, 2016 **Applied discrete mathematics seminar**, ELTE, Budapest, Hungary: *Non-artificial neural network*

Apr 6, 2018 **TDK afternoon**, ELTE, Budapest, Hungary: *Age prediction by using machine learning*

Apr 26, 2018 **Fruits of Ethology seminar**, ELTE, Budapest: *Data mining of brain graphs*

Jul 13, 2018 **Summer University of the Carpathian Basin**, ELTE, Budapest: *Data mining and machine learning of biological datasets*

May 25, 2021 **Journal Club**, Lifespan Extension Advocacy Fundation, New York, USA (Virtual): *A rejuvenation event during embryogenesis*

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Sept 17, 2021	**Science Club (Hungarian Society of Massachusetts)**, Barabási Lab, Boston, USA: *Aging and rejuvenation research by using bioinformatics and machine learning*
Oct 27, 2021	**Genetics Reasearch in Progress (GRIP) seminar**, Division of Genetics, Department of Medicine, Brigham and Womens's Hospital and Harvard Medical School, Boston, USA (Virtual): *Quantifying aging and rejuvenation*
Feb 23, 2022	**Deep learning basic research seminar**, Alfréd Rényi Institute of Mathematics (virtual): *Machine learning for aging- and rejuvenation biology*
Feb 24, 2022	**Evolutionary Zoology Seminar and Human Biology**, Department of Evolutionary Zoology and Human Biology, University of Debrecen: *Research of aging- and rejuvenation by machine learning*
Jul 31, 2023	**Eötvös Science Camp**, Eötvös József Collegium, Eötvös Loránd University *Research of aging- and rejuvenation by machine learning*
Sept 19, 2023	**Bioinformatics Research Seminar**, HUN-REN TTK: *Aging and rejuvenation research by using machine learning*
Oct 19, 2023	**Forum of Students**, HUN-REN SZTAKI: *Aging and rejuvenation research by using machine learning*

Conference Posters

Oct 27, 2013	**Dasman Dundee Discovery Conference**, Kuwait: *Differences of diabetic and non-diabetic adults in terms of intestinal flora*
Feb 26, 2014	**ELTE Innovation Day**, Budapest, Hungary: *Bioinformatics analysis of bacterial communities*
Jun 15, 2015	**Bacterial Genetics and Ecology (BAGECO 13)**, Milan, Italy: *Spatiotemporal patterns and adaptation mechanisms of microbial communities in alkaline soda pans*
Jan 20, 2016	**Hungarian Neuroscience Doctoral Conference (HuNDoC)**, Budapest, Hungary: *Common edges which are in at least x brain graphs of the Budapest Reference Connectome*
May 30, 2022	**Gordon Research Conference: Systemic Processes, Omics Approaches and Biomarkers in Aging**, Newry ME, USA *Epigenetic aging of the demografically non-aging naked-mole rat*
Aug 8-10, 2023	**Hungarian Machine Learning Meeting**, Budapest *Intersection clock revals a rejuvenation event during human embryogenesis*
Aug 30-Sept 1, 2023	**Aging Research and Drug Discovery (ARDD) Meeting 2023**, Copenhagen, Denmark *Intersection clock revals a rejuvenation event during human embryogenesis*

Radio and TV interviews

Mar 27, 2013	**Radio interview on the "Talking about formulas" of Radio Q**, Hungary. *Topic: Talking about formulas with the members of the PIT Group*
Jan 10, 2016	**Radio interview on the programme "Szonda" of Radio Kossuth**, Hungary *Topic: Discovering Giant Viruses in the Kutch desert*
Jul 29, 2016	**Television interview on the programme "Minden Tudás" of M1 channel**, Hungary *Topic: Analysis of brain graphs extracted from diffusion MRI*

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Nov 11, 2016	**Television interview on the programme "Minden Tudás" of M1 channel**, Hungary *Topic: Life without dUTPase*
Jul 23, 2019	**Radio interview on the programme "Napközben" of Radio Kossuth**, Hungary *Topic: Artificial Intelligence*
May 26, 2023	**Radio interview on the programme "Reggeli személy" of Klubrádio**, Hungary *Topic: Can we stop aging?*
May 28, 2023	**Vegan Morzsak Podcast**, Hungary *Topic: The link between biological age and stress*
Jun 12, 2023	**Novum TV**, Hungary *Topic: The link between biological age and stress*
Oct 18, 2023	**RTL+ TV Praxis** *The secret of long life*

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