

ELLA Ya. TÜRÜMINA (Tyuryumina/Tiuriumina/Tueruemina/Turumina)

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From developing mathematical models for breast cancer prediction during my PhD to driving digital transformation in the rail industry, my mission has always been the same: solve real-world problems with technology that matters. Over the past decade, I've led initiatives at the intersection of enterprise architecture, data strategy, and industrial SaaS across world. At Siemens Mobility, I've delivered cost-saving innovations in customer services, built scalable IT solutions across 10+ countries, and introduced strategic KPIs that improve field performance and transparency. I bring together a rare combination: deep scientific rigour, operational experience, and strategic vision. I'm a system thinker, a people-first leader, and a passionate advocate for sustainable and data-driven infrastructure. My approach blends architectural governance with hands-on innovation, mentoring future tech leaders while building resilient ecosystems - from shopfloor to C-level dashboards.

EMPLOYMENT HISTORY

ENTERPRISE ARCHITECT FOR IT LANDSCAPE, CTO ORGANISATION, SMO GmbH CS, Erlangen 2024 – curr

Responsibilities: to **create** a **strategy** and **vision** for transformation of the **IT landscape** 'from projects to products'; to develop and design comprehensive solutions that align with the organization's **business objectives** and IT strategy; to **research** and evaluate new **technologies**, frameworks, and tools to determine their suitability for the organization's needs; to **collaborate** with stakeholders to gather and analyse business requirements, translating them into technical specifications and solution designs.

FIELD EXPERIENCE MANAGER, SMO GmbH CS, Erlangen 2024

Responsibilities: to **develop** and implement key performance indicators (**KPIs**) to measure the **performance** and **effectiveness** of field operations; to develop and deliver **training programs** for field personnel to enhance their technical skills, knowledge, and competency; to develop/support regular reports, dashboards, and performance metrics to provide **insights** into **field operations** and support **decision-making**; to conduct **root cause analysis** and trend analysis to identify **patterns** and drive **continuous improvement** efforts; to **collaborate** with project managers and **cross-functional** teams to support project delivery and execution.

GLOBAL TALENT PROGRAMM, SMO GmbH CS, Erlangen 2023 – 2024

Responsibilities: to **create** a G2M **strategy** for digital tools and deliver the storyline 'from strategy to reality' at the international management conference; to **rebrand** the digital solution with a focus to **sustainability** according to the strategy, provide market analysis, market research, marketing plan, **market segmentation**, and **business case**.

SENIOR KEY EXPERT IN ALGORITHMS AND APPLICATIONS DEVELOPMENT, SMO GmbH CS 2021 – 2025

Responsibilities: to provide consultancy across Siemens about development and maintenance of apps and algos

LEAD OF RESEARCH AND DEVELOPMENT TEAM, SENIOR DATA SCIENTIST, SMO CS, Moscow 2020 – 2021

Stack: **backend:** python (pandas, scikit-learn, numpy, matplotlib, sci-py, tensorflow, keras, nuxeo); **database:** SQL (PostgreSQL, MySQL, Oracle); **host:** cloud/server via docker (AWS: ec2, SageMaker, Elastic Beanstalk, Athena, S3); **presentation of results:** Spotfire; PowerBI; **frontend:** vue, js, swift; **documentation:** JIRA, github

DATA SCIENTIST, SMO CS, Moscow 2017 – 2019

SENIOR LECTURER 2020 – 2021

Mathematical Statistics, lectures and seminars, in English, for the 1st year of Master Program of Computer Science, Faculty of Computer Science, NRU HSE

Combinatorics, Graphs and Computational Logic, seminars, in English, for the 3rd year of Bachelor Program of Applied Mathematics and Informatics, Faculty of Computer Science, NRU HSE

Data Base Theory, seminars, for the 2^d year of Bachelor Program, Faculty of Innovation and High Technology, MIPT

LECTURER 2018 – 2019

Data Base Theory, seminars, in Russian, for the 3rd year of Bachelor Program of Applied Mathematics and Informatics, Faculty of Computer Science, NRU HSE

Data Base Theory, seminars, for the 1st year of Bachelor Program, Faculty of Innovation and High Technology, MIPT

TEACHING ASSISTANT 2015 – 2018

National Research University Higher School of Economics

Moscow, RF

- Data Base Theory, (A. Neznanov, PhD, AP), Erlang Programming (V. Yakovlev, PhD, AP), Languages of Software Development (V. Yakovlev, PhD, AP), Mathematical Analysis (A. Nikitin, PhD, AP)

EDUCATION

FORWARD LEARNING PROGRAM, McKinsey & Company, Germany 2025

Mentee @ ARA Women in Rail Mentoring Program, Australasian Railway Association (ARA), Australia 2025

ARCHIMATE Certified, Netherlands 2025

IPMA Project manager Level D Certified, Novare Consulting APMG, UK/USA 2025

Multiple seminars on leadership in business schools: ESCP, IMD 2024 – 2025

PHD IN APPLIED MATHEMATICS (defence stage) 2019 – curr

National Research University Higher School of Economics (NRU HSE), Moscow, RF

- Senior Thesis: "*The Personalised Mathematical Growth Model of Primary Tumor and Secondary Distant Metastases with Different Growth Rates for Patients with Breast Cancer*"

MASTER OF COMPUTER SCIENCE (cum laude) 2017 – 2019

System and Software Engineering, GPA 9.18/10 (A)

National Research University Higher School of Economics (NRU HSE), Moscow, RF

- Senior Thesis: "*The Mathematical Model for Predicting the Development of the Tumor Growth Process of Breast Cancer*"

BACHELOR OF COMPUTER SCIENCE 2013 – 2017

Applied Mathematics and Information Science, GPA 8.14/10 (A)

National Research University Higher School of Economics (NRU HSE), Moscow, RF

- Senior Thesis: "*Mathematical Methods and Software Tools for Prediction of Breast Cancer Developing*"

RESEARCH EXPERIENCE

JUNIOR RESEARCH FELLOW

International Laboratory for Intelligent Systems and Structural Analysis at NRU HSE

2020 – 2022

Moscow, RF

- Provided analysis of medical data, with emphasis on prediction opportunities, also taking into account the selection of treatment design using machine learning.

RESEARCH ASSISTANT

International Laboratory for Intelligent Systems and Structural Analysis at NRU HSE

2015 – 2019

Moscow, RF

- Provided analysis of medical data. Became familiar with concept analysis in cancer sphere
- Organised and ran workshops and events about Data Analysis in Medicine
- Coordinated volunteers on Concept Lattices Analysis 2016

PERSONAL PROJECT

2015 – 2023

- Built iOS app for predicting the period of manifestation of secondary distance metastases in breast cancer patients with/without metastases in lymph nodes and survival period in breast cancer patients with primary metastases.
- Certificate of the software registration (patent) [2018612104](#), [2021616943](#), [2021667620](#)

SUMMER SCHOOL

2017

Mathematical Oncology Laboratory Universidad de Castilla-La Mancha, Spain

- Theory, practice and development of research project about mathematical modelling and data analysis of data on brain metastases before and after radiosurgery under supervision of Prof. *Víctor M. Pérez-García*, PhD, Head of the Mathematical Oncology Laboratory, Head of the Mathematics Department

PUBLICATIONS (journals and conference proceedings)

Tyuryumina EY. *The CoMPaS exponential growth model: predicting tumor growth and recurrence* // in: VJOncology. 2021

Tyuryumina EY. *Mathematical modelling to predict recurrence periods for secondary metastases in breast cancer* // in: VJOncology. 2021

Tyuryumina EY, Neznanov AA, Turumin JL. *Predictive mathematical modelling of recurrence periods for the secondary distant metastases in patients with ER/PR/HER2/Ki-67 subtypes of breast cancer* // in: The Breast. Vol 56. Elsevier. 2021. P S60-S61. Q1

Tyuryumina EY, Neznanov AA, Turumin JL. *A mathematical model to predict the diagnostics periods for the secondary distant metastases in patients with ER/PR/HER2/Ki-67 subtypes of breast cancer* // 30th American Medical Informatics Association (AMIA 2020), Annual Symposium. – S68: Oral Presentations: Pattern Discovery and Classification. CORE A

Tyuryumina EY, Neznanov AA, Turumin JL. *A mathematical model to predict the diagnostics periods for the secondary distant metastases in patients with ER/PR/HER2/Ki-67 subtypes of breast cancer* // in: Proceedings of the 30th American Medical Informatics Association (AMIA 2020), Annual Symposium. AMIA. 2020. USA. P. 1653. Q3

Tyuryumina EY, Neznanov A., Turumin JL. *A Mathematical Model to Predict Diagnostic Periods for Secondary Distant Metastases in Patients with ER/PR/HER2/Ki-67 Subtypes of Breast Cancer* // in: Cancers. Vol 12(9). MDPI. 2020. P 1-20. Q1

Tyuryumina EY, Neznanov A. *The mathematical model for predicting the earliest diagnostics period of the secondary distant metastases growth process of breast cancer* (abstract) // in: The Breast. Vol 44. Elsevier. 2019. P S88-S89. Q1

Tyuryumina EY, Neznanov A. *Consolidated mathematical growth model of the primary tumor and secondary distant metastases of breast cancer (CoMPaS)* // in: PLoS ONE. 2018. P. 1-16. Q1

Tyuryumina EY. *Consolidated mathematical growth Model of Breast Cancer CoMBreC* // in: WDAM-2017. Workshop on Data Analysis in Medicine. Kalpa Publications in Computing. 2018. P. 19-42

Tyuryumina EY, Neznanov A. *On consolidated predictive model of the natural history of breast cancer considering primary tumor and primary distant metastases growth* // in: Proceedings - 2017 IEEE International Conference on Healthcare Informatics, ICHI 2017, IEEE Computer Society, 2017, pp. 484–489. Scopus

Tyuryumina EY, Neznanov A. *On consolidated predictive model of the natural history of breast cancer: primary tumor and secondary metastases in patients with lymph nodes metastases* // in: ACM International Conference Proceeding Series, ACM Computer Science. 2017. P. 60-66. Scopus

Tyuryumina EY, Neznanov A. *On consolidated mathematical growth model considering primary tumor and secondary metastases* (abstract) // in: The Breast. Vol 32. ELSEVIER. 2017. S106. Q1

CONFERENCES (without publications)

6th Annual Metastatic Breast Cancer Conference, poster presentation Predicting the Earliest Diagnostics Period for the Secondary Distant Metastases Growth Process of Breast Cancer (T1-3N0-3M0) via the Mathematical Models COMPAS and COM-III, 2019, Scottsdale, AZ, USA

AWARDS, GRANTS

The Best Teacher Assistant (2019), Theory of Database, Neznanov AA (Associate Professor, PhD), NRU HSE, Moscow, Russia

Silver Chick, Gold HSE (2018), to award the best students from the whole NRU HSE, Moscow, Russia

Scholarship of President of Russian Federation (2018), to support young scientists and postgraduate students engaged in an advanced research and development in priority areas of the modernization of the Russian economy, 13 scholarships for the whole Faculty of Computer Science NRU HSE, Moscow, Russia

Scholarship of Ilya Segalovich (2018), to support technology enthusiasts and science young scientists, 15 scholarships for the whole Faculty of Computer Science, NRU HSE, Moscow, Russia

Scholarship for achievements in scientific activity (2017, 2018, 2019), to support young scientists, NRU HSE, Moscow, Russia

Best Student Paper (2017), 7th Digital Health (2017), *ACM Awards*, scientific prize, UCL, London, UK

Grant for Scientific Research (2017), summer education, by Mathematical Oncology Laboratory Universidad de Castilla-La Mancha

Finalist (2016), *Scientific-Research Students Papers Competition*, "Information technologies and computer systems", Kazan, Russia

2nd place (2015), *Scientific-Research Students Papers Competition*, Computer science, National Research University Higher School of Economics, Moscow, Russia

1st place (2011), *Informatics*, Olympiad in Informatics, Filial of Plekhanov Russian University of Economics, Irkutsk, Russia

OTHER EXPERIENCE

Speaker at Women in Tech, Open Innovator (2025, USA)

Cultural Club Happy Aliens (2024-curr, Erlangen, Germany), charity organisation

Social media strategy and management (@happy_alien_erlangen), shooting video, event organisation.

Increased followers two times in 3 months, raised 5000 euros for the club events.

Chartered Financial Analyst (CFA) program (2020 - curr), online attendee

Tennis School (2010-2013, Irkutsk, Russia); (2017, Castilla-La Mancha, Spain); (2013-2021, Moscow, Russia);

(2021-curr, Erlangen, Germany)

What? Where? When? (2010-2013), Irkutsk, Russia

Member of Lyceum Team. Participation in Regional competitions.

It is an intellectual game well known in Russian-language media and other CIS states since the mid-1970s. Today it also exists as a competitive game played in clubs organized by the World Association of Intellectual Games.

Ballet Artist (2010-2012), Regional Musical Theater named after. Zagursky, Irkutsk, Russia

Ballet School (2002-2010), Regional Musical Theater named after. Zagursky, Irkutsk, Russia

Awards:

- *Laureate-finalist* in nomination classical dance **soloist** at **Youth America Grand Prix** International Ballet and Contemporary Dance Competition for Youth (New York, USA, March 21-25, 2010)
- *Laureate-finalist* in nomination classical dance **ensembles** at **Youth America Grand Prix** International Ballet and Contemporary Dance Competition for Youth (New York, USA, March 21-25, 2010)
- *Silver Medal* in nomination contemporary dance **duet** at International choreographic festival-competition **Tanz Olymp** (Berlin, Germany, February 18-22, 2009)
- *Silver Medal* in nomination contemporary dance **ensembles** at International choreographic festival-competition **Tanz Olymp** (Berlin, Germany, February 18-22, 2009)
- *Laureate-finalist* at All-Russian competition of children's musical theatres named after. Natalia Sats "Blue Bird" (Moscow, Russia, December, 2008)
- *Laureate of the 1st degree* in nomination classical dance **soloist** at International festival-competition of music and dance "Talents Without Borders" (Salou, Spain, June, 2008)
- *Laureate of the 1st degree* in nomination classical dance **duet** at International festival-competition of music and dance "Talents Without Borders" (Salou, Spain, June, 2008)
- *Gran Prix* in nomination classical dance **ensembles** at International festival-competition of music and dance "Talents Without Borders" (Salou, Spain, June, 2008)
- *Laureate of the 1st degree* in nomination classical dance **soloist** at V International Competition of Choreographic Groups "Petersburg Snowstorm" (St. Petersburg, Russia, January, 2008)
- *Laureate of the 2d degree* in nomination classical dance **ensembles** at V International Competition of Choreographic Groups "Petersburg Snowstorm" (St. Petersburg, Russia, January, 2008)
- *Laureate of the 1st degree* in nomination classical dance **ensembles** at All-Russian festival-competition of amateur classical dance groups (Novosibirsk, Russia, November, 2007)
- *Soloist diploma* at IX International Festival of Children's Creativity (Obzor, Bulgaria, August, 2007)
- *Laureate of the 1st degree* in nomination classical dance ensembles at International competition "Rose of the Winds" (Lencroitre, France, April, 2007)

Ballets: Nutcracker: Mari (2009), dolls (2009), children (2004); Cinderella: dwarf (2005); Cipollino: Radish (2006-2008); Thumbelina: Thumbelina (2008-2010).

Chess School (2002-2007), Irkutsk, Russia

Awards: silver and bronze medals at regional competitions

LANGUAGES

Russian (native), English (C2), German (B2), French (A1), Spanish (A1), Italian (A1)

MEMBERSHIPS

AMIA, IEEE, ACM, Women in Mathematics, Google's Women Techmakers, Siemens Female Data Science Network

HOBBIES

Opera, classical literature, golf, skiing, sky-diving, car-racing, bouldering, beach volleyball

Scopus Author ID: [57195103709](#)