Yulia Kumar | **(908) 313-6015** - US citizenship | ***yuliakumar2017@gmail.com*** | **LinkedIn**

SUMMARY

Experienced .NET full-stack expert and faculty member at Kean University possessing proficiency in a diverse range of programming languages, databases, and front-end technologies and teaching these to undergraduate and graduate students. Expertise spans React.js, Node.js, Express, .NET, Angular, and Azure AI among other technologies. Deeply involved in AI research, particularly in Transformer Neural Networks and Large Language Models. Of particular interest are the capabilities of no-code and low-code development platforms, especially in the realm of no-code AI. Foremost concerns revolve around climate change and addressing biases in AI, encompassing both technical and ethical aspects.

EDUCATION

KEAN UNIVERSITY, Union, NJ
MS in Computer Information Systems with Distinction, GPA: 4.00/4.00 — *January 2016*
BS in Computer Science, Summa Cum Laude, GPA: 3.99/4.00 — *January 2015*
Minor in Mathematics — *January 2015*

INSTITUTE OF ECONOMICS, Russian Academy of Sciences (RAS), Moscow, RUSSIA
Doctor of Philosophy (Ph.D.) in Finance — *January 2007*

MOSCOW STATE UNIVERSITY OF ECONOMICS, STATISTICS & INFORMATICS, Moscow, RUSSIA
MS in Statistics — *June 2002*
BS in Statistics — *June 2001*

TEACHING EXPERIENCE

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY
KEAN University, Union, NJ, September 2019 - present

Lecturer II

- **Expert in Java, JavaScript, PHP, MySQL, C# and HTML/CSS/JavaScript/Bootstrap/Node.js**
- **Teach** the following courses to Kean undergraduates:
  - Transition to Kean (GE*1000)
  - Fundamentals of Computer Science (CPS*1231)
  - ChatGPT Exploration (CPS*1996)
  - Computer Programming (CPS*2231)
  - Data Structures (CPS*2232)
  - Software Development with Frameworks (CPS*3330)
  - Programming World Wide Web Server (CPS*3500)
  - Web Client-Side Programming (TECH*3500)
  - Independent Study in CS (CPS*4881)
  - Independent Study in IT (TECH*4881)
  - Senior Research (CPS*4961)
  - ST: .NET Framework and C# (TECH*4981)
- **Teach** the following courses to Kean graduates:
  - ID 5800 Growth Mindset Tutoring (thesis)
  - Web. Design and Development (CPS*5500)
- **Mentor** undergraduate and graduate students - AI researchers in Natural Language Processing, Recommender Systems, Computer Vision, Transformer Neural Networks, and LLMs.

DEPARTMENT OF MATHEMATICS
KEAN University, Union, NJ, September 2013 – August 2014

Math tutor

- **Taught** Pre-calculus, Calculus I, II, III, Matrix algebra, Applied Statistics I, II to Kean STEM students.

UPWARD BOUND PROJECT (@KEAN University), Union, NJ, Jun 2014 – Aug 2014

Yulia Kumar | **(908) 313-6015** - US citizenship | ***yuliakumar2017@gmail.com*** | **LinkedIn**

Tutor/Mentor

- **Taught** Pre-calculus, Calculus I, Algebra II to high school students.

MOSCOW ACADEMY OF FINANCE AND LAW (MFUA), Moscow, Russia, Sept 2008 - May 2012
Associate professor

- **Taught** the following disciplines to undergraduate students:
  - Financial Statistics
  - Budget system of Russian Federation (developed)
  - Senior Project / Research
- Worked as a Senior Project Advisor (Online/Remotely in 2010 –2012).
- Completed and published several financial projects, devoted to the balancing of the Russian Pension Fund & Social Security system in Russia.
- Key software skills: SPSS, SAS, Statistica, R.

MOSCOW STATE INSTITUTE OF RADIO-ENGINEERING, ELECTRONICS AND AUTOMATION (MIREA) Moscow, Russia, September 2002 - May 2007
Lecturer

- **Taught** statistics, economics, and finance to undergraduate students:
  - Math Statistics / Statistics
  - Financial Mathematics
  - Insurance
  - Industrial Economics / Economics
  - The budget system of the Russia Federation
- Key software skills: SAS, SPSS, Statistica, MATLAB, Olymp, STATA

WORK EXPERIENCE

GIBRALTAR LABORATORIES @ NELSON LABS, Pine Brook, NJ, Summer 2019
Software Developer

- **Expert in C#, Java, SQL server, PowerShell scripts, Visual and Android studio**
- Developed Android application, devoted to company's equipment calibration checking (Java)
- Developed and scheduled stored procedures to monitor events in SQL server databases, set up alerts using T-SQL and PowerShell scripts.
- Developed .NET web MVC application 'Media Preparation system', devoted to automation of sterilization processes and their documentation (Full stack Development, C#, SQL server, HTML/CSS/JavaScript)
- Enhanced existing .NET Desktop and Web applications.
- Provided customer service and support to company clients and internal users.

RUCDR INFINITE BIOLOGICS (@RUTGERS University), Piscataway, NJ, May 2017- May 2019
Unit Administrator/Specialist

- **Expert in C#, VB.NET, Jscript.NET/SSL, ASP.NET, SQL server 2008/2012/2016, SSIS, SSRS, MySQL & PostgreSQL, PHP, Laravel, HTML/CSS/JavaScript/jQuery, STARLIMS/SDMS, Crystal reports, Doctrine, Joomla**
- Experienced in developing and supporting public-facing web sites/applications with compatible mobile and desktop code & responsive web design.
- Actively participated in a team project of upgrading IE based STARLIMS system version v 10 to the browser-independent html5-based v 11.6.
- Integrated the context of the old STARLIMS pre-login pages (VB.NET) into new ReqForms (C#)
- Assisted in migrating SQL Server databases from SQL server 2008 to 2016 initially to AWS platform and later to the inner VM.

- Provided user support, customer service and development support to the users and developers of the RUCDR STARLIMS LIMS & other applications managed by the department.
- Worked independently on projects of some complexity or under supervision on larger, more complex applications.
- Collaborated with outside vendors, team members and other groups via Webex and in person.
- Assisted in providing production support and maintenance for 5 RUCDR and Genetics databases, multiple web sites and applications including STARLIMS, Linux based systems PHP-MySQL-Laravel and PHP-Postgres-Doctrine, Joomla website and Bartender label-printing server & others.
- Participated in the modification and enhancement to the existing applications and web sites.
- Upgraded both Linux applications NAQC and FQC from PHP 5.3.3. to PHP 7.2.2, renovated Laravel, MySQL, Postgres, JavaScript, HTML & CSS, migrated CentOS 6 to Ubuntu 16.04.
- Performed data export and import, closely worked with the views, tables and stored procedures, SSIS, SSRS
- Created & maintained version control of Installation Qualifications and Installation/Upgrade Instructions for all performed systems installs and upgrades.
- Worked on the PDF extraction project using JAVA & Apache PDFBox
- Demonstrated a strong drive and ability to meet or exceed established deadlines and timetables.
- Resolved reported bugs and issues, closed 200+ issue related tickets.

MEDLABS Diagnostics, Cedar Knolls, NJ, January 2016 – March 2017
ASP.Net Developer

- **Specialist in C#, VB.NET, ASP.NET, SQL server 2012, SSIS, SSRS, HTML/CSS/JavaScript/jQuery, Visual studio**
- Developed robust and user-friendly .NET web applications.
- Significantly upgraded ASP.NET application (later called CARS), devoted to the automation and optimization of the Logistics Department workflow
- Created from scratch a ticketing-like system for the Customer Service Department to improve their everyday work and communication with users, management, Logistics and other company departments.
- Participated in maintenance and improvement of the inner financial system KRONUS, improved reporting side of the application, introduced multi-select filtering to several pages.
- Provided support, maintenance & optimization of other systems and web .NET apps.
- Provided tech support and customer service to the users of the Orchard Copia system on site and remotely.
- Closely Worked with SQL server 2012, SSIS, SSRS
- Created software documentation for the newly created apps, updated existing documents.

OFFICE OF INSTITUTIONAL RESEARCH (@KEAN University), Union, NJ, Sept 2014- Dec 2015
Academic specialist

- **Specialist in VB, ASP, VB.NET, ASP.NET, SQL server 2008, SSIS, SSRS, VBscript, HTML/CSS/JavaScript/jQuery, Visual studio, Google Analytics**
- Played key role in the department project of migrating .ASP website into .ASPX (.NET environment)
- Worked on the ASP website support and renovation.
- Developed Excel & PDF reports using Excel macros in a timely manner, participated in creation and improvement of the Department's yearly 'University profile' fact book and related printed materials.
- Maintained and updated tables and stored procedures (SQL server 2008)
- Worked on a project of Kean historical data restoration, performed data mining in IR and University Archives, analyzed and compared available information with university-wide and state-wide reports and records.
- Programming for both Web and windows-based Microsoft applications
- Report Development using SSRS, SSIS

Published more than 20 research papers, a scholarly monography, and several teaching materials (lecture notes and practicums) in the area of Economics & Finance.

MOST RECENT PUBLICATIONS

[1] **Kumar, Y.,** Morreale P, Sorial P, Delgado J, Li JJ, Martins P. A Testing Framework for AI Linguistic Systems (testFAILS). Electronics. **2023**; 12(14):3095.

[2] **Y. Kumar**, P. Morreale, P. Sorial, J. Delgado, J. J. Li and P. Martins (**2023**) A Testing Framework for AI Linguistic Systems (testFAILS). In proceedings of the 2023 IEEE International Conference on Artificial Intelligence Testing (AITest), DOI: 10.1109/AITest58265.2023.00034.

[3] Tellez, N., Serra, J., **Kumar, Y.,** Li, J.J., Morreale, P. (**2023**). Gauging Biases in Various Deep Learning AI Models. In: Arai, K. (eds) Intelligent Systems and Applications. IntelliSys 2022. Lecture Notes in Networks and Systems, vol 544. Springer, Cham.

[4] **Y. Kumar,** J. Delgado, E. Kupershtein, B. Hannon, J.J. Li and P. Morreale. (**2023**) AssureAIDoctor-A Bias-Free AI Bot. In proceeding of the 2023 International Symposium on Networks, Computers and Communications (ISNCC): Artificial Intelligence and Machine Learning. (ISNCC 2023, accepted)

[5] E. Kupershtein, **Y. Kumar**, A. Manikandan, P. Morreale, and J. J. Li. (**2023**) ChatGPT: A Game-Changer for Embedding Emojis in Faculty Feedback. In proceeding of the 19th International Conference on Frontiers in Education: Computer Science & Computer Engineering (FECS 2023, presented).

[6] B. Hannon, **Y. Kumar**, P. Sorial, J. J. Li, and P. Morreale (**2023**) From Vulnerabilities to Improvements: A Deep Dive into Adversarial Testing of AI Models. In proceeding of the 21st International Conference on Software Engineering Research & Practice (SERP 2023).

[7] A. Balcacer, B. Hannon, **Y.Kumar**, K. Huang, J. Sarnoski, S. Liu, J. J. Li, P. Morreale (**2023**) Mechanics of a Drone-Based System for Algal Bloom Detection Utilizing Deep Learning and LLMs (URTC 2023, accepted)

[8] **Y. Kumar**, W. Li, K. Huang, M. Thompson, B. Hannon (**2023**) Natural Language Coding (NLC) for Autonomous Stock Trading: A New Dimension in No-Code/Low-Code (NCLC) AI. (QRS 2023, accepted)

[9] **Y. Kumar**, Z. Gordon, P. Morreale, J. Jenny Li, B. Hannon. (**2023**) Love the Way You Lie: Unmasking the Deceptions of LLMs. (QRS 2023, accepted)

[10] J. Chu, **Y.Kumar,** D. Kwak, J. Novotny, P. Patel and P. A Morreale (**2023**) Evaluating the Effectiveness of Equitable K-12 Professional Learning Access in Computer Science. In proceeding of the 2023 IEEE Integrated STEM Education Conference (ISEC 2023, accepted).

[11] J. Delgado, U. Ebreso, Y. Kumar, J. J. Li and P. Morreale, "Preliminary Results of Applying Transformers to Geoscience and Earth Science Data," **2022** International Conference on Computational Science and Computational Intelligence (CSCI), Las Vegas, NV, USA, 2022, pp. 284-288, doi: 10.1109/CSCI58124.2022.00054.

[12] Pankati Patel, Patricia Morreale, **Yulia Kumar**, Daehan Kwak, Jean Chu, Rose Garcia, Sabyatha Sathish and Margaret Burnett (**2022**) Embedding Equitable Design in the CS Computing Curricula. In proceedings of the SIGCSE 2023.

[13] Pankati Patel, Patricia Morreale, Jean Chu, **Yulia Kumar**, Daehan Kwak, Rosalinda Garcia, Margaret Burnett (**2022**) Implementing Inclusive Software Design in the CS Curriculum. In Proceedings of the SIGCSE 2023.

[14] A. Abduljabbar, N. Gupta, L. Healy, **Y. Kumar**, J. J. Li and P. Morreale, "A Self-Served AI Tutor for Growth Mindset Teaching," **2022** 5th International Conference on Information and Computer Technologies (ICICT), 2022, pp. 55-59, doi: 10.1109/ICICT55905.2022.00018.

[15] N. Tellez, J. Serra, **Y. Kumar**, J. J. Li, P. Morreale (**2022**). "An Assure AI Bot (AAAI bot)," 2022 International Symposium on Networks, Computers and Communications (ISNCC), 2022, pp. 1-5, doi: 10.1109/ISNCC55209.2022.9851759.

[16] J. Serra, S. Fortes, A. Allaico, E. Landaverde, R. Quezada, **Y. Kumar**, J. J. Li, P. Morreale, **2022**. Validation of AI models for ITCZ Detection from Climate Data. In Proceedings of International Conference on Data Science and Information Technology 5th International Conference on Data Science and Information Technology (DSIT), 2022, pp. 1-7, doi: 10.1109/DSIT55514.2022.9943879

[17] Daehan Kwak, Patricia Morreale, Sarah T. Hug, **Yulia Kumar**, Jean Chu, Ching-Yu Huang, J. Jenny Li, Paoline Wang. Evaluation of the Use of Growth Mindset in the CS Classroom: Proceedings of the 53rd ACM Technical Symposium on Computer Science Education (SIGCSE'22), V. 1, February **2022**, Pages 878–884.

[18] Daehan Kwak, Patricia Morreale, J. Jenny Li, Ching-Yu Huang, Daehan Kwak, **Yulia Kumar**, Jean Chu and Paolien Wang. Framework for a Growth Mindset Classroom: Proceedings of the 52nd ACM Technical Symposium on Computer Science Education (SIGCSE '21), March **2021**, Page 1269.

[19] R. Kulesza, **Y. Kumar**, R. Ruiz, A. Torres, E. Weinman, J. J. Li, P. Morreale. (**2020**) Investigating Deep Learning for Predicting Multi-linguistic conversations with a Chatterbot, In Proceedings of the 2020 5th IEEE International Conference on Big Data Analytics (ICBDA).

[20] Austin Halper, Miguel A. Mosteiro, **Yulia Rossikova**†, Prudence W. H. Wong: Station Assignment with Reallocation. Algorithmica 81(3): 1096-1125 (**2019**).

[21] Austin Halper, Miguel A. Mosteiro, **Yulia Rossikova**†, Prudence W. H. Wong: Station Assignment with Reallocation. CoRR abs/1803.01276 (**2018**).

[22] **Yulia Rossikova**†, J. Jenny Li, Patricia Morreale: Intelligent Data Mining for Translator Correctness Prediction, 2016 IEEE 2nd International Conference on Big Data Security on Cloud (BigDataSecurity), IEEE International Conference on High Performance and Smart Computing (HPSC), and IEEE International Conference on Intelligent Data and Security (IDS), **2016**, pp. 394-399, doi: 10.1109/BigDataSecurity-HPSC-IDS.2016.19.

[23] Li JJ, **Rossikova Y. †**, Morreale P. Natural Language Translator Correctness Prediction. Journal of Computer Science Applications and Information Technology. **2016** October 20; 1(1):11.

[24] Mosteiro MA, **Y. Rossikova†,** Y, Wong PW. H. Station Assignment with Reallocation. International Symposium on Experimental Algorithms (SEA **2015**); 2015 June 20; Paris, France.

[25] **Rossikova Y. †**, Li JJ, Morreale P. Predicting Correctness of Google Translate. International Conference on Artificial Intelligence ICAI2015; **2015** July; Las Vegas, NV, United States.

†former Yulia Rossikova

MOST RECENT PRESENTATIONS

[1] P. Sorial, **Y. Kumar**. (**2023**) A Testing Framework for AI Linguistic Systems (testFAILS) (GMiS 2023, October 2023).

[2] L. Castro, **Y. Kumar**, (**2023**) Unveiling Bias in Transformer Models Across Diverse Datasets (GMiS 2023, October 2023).

[3] W. Villalobos, **Y. Kumar**, (**2023**) The Multilingual Eyes App (GMiS 2023, October 2023).

[4] B. Hannon, **Y. Kumar**, (**2023**) A Deep Dive into Adversarial Testing of AI Models (GMiS 2023, October 2023).

[5] A. Balcacer, **Y. Kumar**, (**2023**) Addressing Algae Pollution in the East Coast: A Drone and Deep Learning Approach (GMiS 2023, October 2023).

[6] G. Serrano, **Y. Kumar**, J. Jenny Li (**2023**) Realtime ASL Recognition Using Computer Vision and AI (TAPIA 2023, 3d place in ACM competition.).

[7] A. Balcacer, A. Zaman, **Y. Kumar**, J. J. Li, K. Huang, P. Morreale (**2023**) Applying Drones and Deep Learning models to tackle the algae pollution problem in East coast. Presented at the Systems and Technologies for Remote Sensing Applications Through Unmanned Aerial Systems (STRATUS 2023, presented).

[8] N. Tellez, J. Serra, **Y. Kumar**, J. J. Li, P. Morreale. An Assure AI Bot (AAAI bot). (**2022**) Presented at the 4th International Workshop on Bots in Software Engineering (BotSE 2022, virtual, May 9, **2022**)

[9] J. Waldron, J. Serra, A. Abduljabbar, **Y. Kumar**, P. Morreale, J. J. Li (**2022)**. Assessment of an Integrated Development Environment for Usability and Inclusion. Presented at the International Conference on Data Analytics and Computing (ICDAC 2022, Wenzhou, China, May 28-29, 2022)

[10] Jose Serra, **Y. Kumar**, Ricardo Quezada, Kimberly Opara. (**2022**) Validation of Artificial Intelligence Models. Presented at the 14th Annual Garden State-Louis Stokes Alliance for Minority Participation Northern New Jersey Bridges to the Baccalaureate STEM Research Conference, (November 18, 2022).

[11] N. Tellez, **Y. Kumar**, J. J. Li, P. Morreale. (**2022**) Introspective Analysis of AI/ML Architecture to Gauge and Mitigate biases. Presented at the 2022 National Conference on Undergraduate Research (NCUR **2022)**.

[12] A. Abduljabbar, N. Gupta, L. Healy, **Y. Kumar**, J. J. Li, P. Morreale. (**2022**) Growth Mindset Educational Recommendation System. Presented at the 2022 National Conference on Undergraduate Research (NCUR 2022).

[13] Jose Serra, **Y. Kumar**. (**2022**) Validation of AI models for ITCZ Detection from Climate Data. Presented at the 13th Annual Garden State-Louis Stokes Alliance for Minority Participation Northern New Jersey Bridges to the Baccalaureate STEM Research Conference (February 19-25, 2022), p. 34, https://www.wpunj.edu/lsamp/agenda/GSLSAMP_AbstractBooklet2022.pdf.

[14] P. Patel, **Y. Kumar**. (**2022**) Inclusive AI Tutor. Presented at the 2022 Great Minds in STEM Conference (GMiS 2022).

[15] O. Alabi, **Y. Kumar**, (**2022**) Image abstraction from the Center Of Boundary Balance. Presented at the 2022 Great Minds in STEM Conference (GMiS 2022).

[16] J. Rodriguez, **Y. Kumar**, (**2022**) Generative Deep Learning for Multi-Language Article. Presented at the 2022 Great Minds in STEM Conference (GMiS 2022).

[17] L. Sarria, **Y. Kumar**, (**2022**) The role of AI in Digital Marketing. Presented at the 2022 Great Minds in STEM Conference (GMiS 2022).

[18] J. Serra, **Y. Kumar**, (**2022**) Validation of AI models for ITCZ Detection from Climate Data. Presented at the 2022 Great Minds in STEM Conference (GMiS 2022), 2nd place in student poster competition.

[19] U. Ebreso, **Y. Kumar**, (**2022**) An Assure AI bot. Presented at the 2022 Great Minds in STEM Conference (GMiS 2022), 1st place in student poster competition.

[20] L. Healy, **Y. Kumar**, J. J. Li "AI Human Interface for Growth Mindset Tutor" [Online]. In proceedings of the First symposium of the CS department @WKU, **2021**.

[21] L. Healy, **Y. Kumar**, J. J. Li (**2021**) AI Human Interface for Growth Mindset Tutor. Presented at the 2021 Great Minds in STEM Conference (GMiS 2021). Available: https://posters.gmis-scholars.org/vf/453.

[22] Chigozie Ofodike, Anibely Torres, **Yulia Kuma**r, J. Jenny Li. (**2021**) Research on Inclusiveness in Computer Science Education, Presented at the 2021 National Conference on Undergraduate Research (NCUR 2021), https://apps.cur.org/ncur2021/search/display_ncur.aspx?id=112239.

[23] J. J. Li, **Y. Rossikova†** and B. Vega: RN-Chatter: A Swift Way to Understanding, CUR's Posters on the Hill handbook, April **2016**, NJ poster, http://www.cur.org/assets/1/23/Posters_on_the_Hill_2016_Full_Program.pdf.

PUBLICATIONS UNDER CONSIDERATION (PENDING)

[1] E. Kupershtein, **Y. Kumar**, P. Morreale and J. J. Li (**2023**) Benefits and Drawbacks of Incorporating CS0 into K-12 Education (SIGCSE 2024, submitted)

[2] **Y. Kumar,** P. Morreale, E. Kupershtein, B. Hannon, M. Thompson, J. Delgado, J J.J. Li (**2023**) Empowering CS Education with Low-Code AI Through the Lens of LLMs (SIGCSE 2024, submitted)

[3] **Y. Kumar**, Z. Gordon, O. Alabi, J. J. Li, K. Leonard, L. Ness, P. Morreale (**2023**) ChatGPT Translation of Program Code for Image Sketch Abstraction (AAAI 2024, submitted).

SYNERGISTIC ACTIVITIES

1. National Center for Women and Information Technology (NCWIT) Academic Alliance, Co-Chair, 2019 – present.

2. NJ Computer Science Hub, providing professional learning in computer science for NJ K-12 educators, funded by the New Jersey Department of Education 2021-2022, https://www.keancshub.com/team.

3. Session Chair and Technical Program Committee for ICICT 2022, ICICT 2023, AMLIT 2023 and CSSE 2022, Technical Program Committee for COLLA 2023, CCCAI 2023, MLAMDA 2023, ACCSE 2023, DSIT 2023, ACCSE 2023, CSITAI 2023 international Conferences

4. Judge at Nokia Bell Labs North Jersey Regional Science Fair. https://njrsf.org/. 2021 - present.

5. Active voting member of Kean University Curriculum and Distance Learning Committees, Active ACM, ACM-W, ISAC, Association for Women in Mathematics (AWM) and IEEE member, Coordinator for AI4ALL College Pathways: Kean University program

In 2023 Ms. Yulia Kumar was selected to receive a very competitive **CAHSI-GOOGLE grant** in collaboration with Balajee Vamanan from University of Illinois at Chicago to help two Hispanic female students in their path to PhD in Computer Science through the guidance, mentorship, and joint research experience.