Curriculum Vitae

Dr. Alexander Semenov

Assistant Professor
Industrial and Management Systems Engineering
College of Engineering
University of South Florida, Tampa, FL 33620
Email: asemenov@usf.edu
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Professional Preparation

- **Ph.D. in Computer Science**, May 2013
  Department of Computer Science and Information Systems, University of Jyväskylä, Jyväskylä, Finland
- **M.S. in Electrical and Electronics Engineering**, February 2008
  Department of Information and Measurement Technique and Technologies, Saint-Petersburg State Electrotechnical University, Saint Petersburg, Russia

Research Interests

ML/AI, Deep Learning, Data Science/Engineering, Network Science, Operations Research, Logistics/Supply Chain Management, Complex Systems, High-Performance Computing, Health informatics, Big Data, Social Media Analytics, Blockchain Technology

Academic Appointments

- Assistant Professor, Department of Industrial and Management Systems Engineering, University of South Florida, Tampa, FL, August 2025 - present
- Research Assistant Professor, Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL, 2020 - August 2025 (courtesy appointment since April 2020; regular appointment start date December 2022)
- Assistant Professor (Finnish: "Tutkijatohtori", internationally equivalent to assistant professor), Faculty of Information Technology, University of Jyväskylä, Jyväskylä, Finland, June 2014 - 2020
- Postdoctoral researcher (project-based), Department of Mathematical Information Technology, Faculty of Information Technology, University of Jyväskylä, Jyväskylä, Finland, May 2013 - June 2014
- Full time doctoral student, research assistant, Department of Computer Science and Information Systems, Faculty of Information Technology, University of Jyväskylä, Jyväskylä, Finland, October 2009 - May 2013
- Doctoral student, Department of Computer Technologies, Faculty of Information Technologies and Programming, National Research University of Information Technologies, Mechanics and Optics, Saint-Petersburg, Russia, October 2008 - May 2011

Industry Appointments

- Senior Technical Advisor, Toxeus LLC, FL, USA, May 2021 - present
  Serverless cloud optimization solver software
- Lead AI Scientist, Silo.AI, Finland, May 2021 - December 2022
  The largest artificial intelligence solution and service provider in the Nordics.
- Chief Technology Officer, Bountye Pty Ltd., Sydney, Australia (remote), 2020 - May 2021
  Startup, large scale web-scraping, data aggregation and search for 3rd party customers (mainly FinTech services).

◇ Senior consultant (part-time), shareholder, WEOPTIT Oy, Jyväskylä, Finland, August 2017 - April 2022.

Startup company, in 2018 acquired by a large Nordic consulting company. I designed and implemented customer-tailored artificial intelligence and optimization-based solutions for large business customers (such as price prediction/appraisal models, custom anomaly detection models, information retrieval problems for e-commerce, production processes optimization, etc). https://www.visma.com/press-releases/visma-aquires-weoptit/

◇ Scientific consultant (part-time), shareholder, NFleet Oy, Jyväskylä, Finland, June 2014 - January 2018

Startup company, a spin-off of a university CO-SKY project; I designed efficient algorithms for map data processing, geocoding, and shortest path computation. In 2017 NFleet participated and won startup challenge by Daimler Mercedes Benz.

Visiting Appointments

1. Visiting Scholar, Business School, University of Sydney, Sydney, NSW, Australia, January-February 2019, November-December 2019, November 2022
2. Visiting Scholar, Department of Industrial Engineering and Management Systems, University of Central Florida, Orlando, FL, USA, May-August 2019
3. Visiting Scholar, Department of Industrial and Systems Engineering, University of Florida, Shalimar, FL, USA, May-August 2018, May-August 2017, May-August 2016, July-August 2015
4. Visiting Scholar, Department of Industrial and Systems Engineering, University at Buffalo, Buffalo, NY, USA, August-October 2015, June-August 2013
5. Visiting Scholar, Department of Computer Science, The University of Memphis, Memphis, TN, USA March-April 2014

Sponsored Projects (as Principal Investigator and Co-Principal Investigator)

1. **Co-PI**. *From Sunshine to Harvest: Fueling Rural Northeast and Central Florida's Growth with Social Media Insights and AI*, $650,000, NIFA USDA, PI: Q. Zheng, Co-PIs: Z. Yu, A. Watson, 08/2024 – 08/2027
2. **PI**. *Deep Learning Navigation Applications with Synthetic Aperture Radar Image Data*, $375,714, Proposal #: FA865119D0037, Air Force Research Laboratory, Eglin AFB, 08/2021-02/2024 (appointed as PI in February 2023).
3. **Co-PI**. *Natural Language Processing Methods for Drug Discontinuation Discovery Using Public Health Data Sets*, $10K, UF Research Thrust Pilot Project, PI: X. Zhong, Co-PI: M. Alvarado, 12/2022-12/2023
4. **PI**. *Information spread in online social media*, $160K, European Office of Aerospace Research and Development, U.S. Air Force Office of Scientific Research, 03/2017-03/2020.
5. **PI**. *Science-driven next generation feedback aggregation system*, €400K, BusinessFinland (TEKES), Finland, 03/2018-02/2020.

Sponsored Projects (other roles)

1. *RAPID: Adaptive Sampling Strategies for COVID-19 Mass Testing.* $130K, NSF RAPID Project, PI: X. Xian, 06/2020-05/2022, Role: Senior Personnel
2. *Innovative approach to a fair tax system for Multinationals and Governments.* AUD 334K, ARC Discovery Project, PI: S. Akhtar, The University of Sydney Business School, 12/20-06/24, Role: Partner Investigator
3. *Platformization of The Digital Newspaper Market: The Case of Finland*, €60K, The Media Industry Research Foundation of Finland, PI: T. Tuunanen, 01/2019-08/2019

4. *Cyber Trust, Privacy of Digital Personal Identities*, €492K, TEKES, PI: P. Neittaanmäki, 03/2015-08/2017
5. *MineSocMed: mining social media sites*, €732K, Academy of Finland, PI: J. Veijalainen, 09/2013-08/2017.
6. *Victim Support for Identity Theft*, €122K, European Commission, PI: M. Siponen, 09/2014 - 01/2017
7. *CO-SKY: Cost-effective optimization solutions for transport planning for the SME sector*, €1.660M, TEKES, PI: P. Neittaanmäki, 07/2012-12/2014

Publications

◇ **Refereed Journal Articles**[1]

1. A. Prokhorov, P. Radchenko, A. Semenov, A. Skrobotov. Change-Point Detection in Time Series Using Mixed Integer Programming, *Journal of Business & Economic Statistics* (IF=2.5), 2025
2. T. Macieira, R. Bjarnadottir, P. de Oliveira Salgado, A. Baranwal, A. Semenov, K. Priola, P. Pestana, S. Okafor, N. Mena, N. Montoya, L. Sargent, A. Presley, Y. Yao, G. Keenan. Standardizing nursing interventions data from electronic health records using Generative Pretrained Transformer (GPT) models and Retrieval-Augmented Generation (RAG) process, *Nursing Outlook* (IF=3.7), 2025
3. T. Pimenova, V. Kolycheva, A. Semenov, D. Grigoriev. The Influence of News, Expert and Public Opinion on Painting Prices: An Empirical Analysis, *Empirical Studies of the Arts* (IF=1.5), 2025
4. A. Semenov, A. Veremyev, E. L. Pasiliao, V. Boginski. Bandpass Threshold Models for Activation and Influence Propagation in Social Networks, *IEEE Access* (IF=3.6), 2025
5. R. Wang, Y. Ophir, A. Semenov, A. Nikolaev. Content Engagement Capacity: A Network-Based Approach for Evaluating the Ability of Frames to Facilitate Political Online Conversations, *Information, Communication & Society* (IF=4.2), 2025
6. A. Dolaeva, U. Beliaeva, D. Grigoriev, A. Semenov, M. Rysz. Analyzing and forecasting P/E ratios using investor sentiment in panel data regression and LSTM models, *International Review of Economics & Finance* (IF=4.8), 2025
7. W. Trevena, X. Zhong, M. Alvarado, A. Semenov, A. Oktay, D. Devlin, A. Gohil, H. Chittimouju. Utilizing Open-Source Language Models and ChatGPT for Zero-Shot Identification of Drug Discontinuation Events in Online Forums: Development and Validation Study, *Journal of Medical Internet Research* (IF=5.8), 2024
8. M. Borisov, V. Kolycheva, A. Semenov, D. Grigoriev. How does the color palette affect the pricing of abstract paintings? *Information Systems Frontiers* (IF=6.9), 2024
9. M. Rysz, A. Semenov. A Key Distribution Technique for Wireless Sensor Networks Using Spanning Trees, *Expert Systems with Applications* (IF=7.5), 2024
10. A. Pimenov, V. Kolycheva, A. Semenov, D. Grigoriev. The Death of The Author: the case of art market, *Empirical Studies of the Arts* (IF=1.5), 2024
11. X. Zan, A. Semenov, C. Wang, X. Xian, W. Geremew. Causality-aware Social Recommender System with Network Homophily Informed Multi-treatment Confounders, *Information Sciences* (IF=8.1), v. 676, 120729, 2024
12. A. Semenov, M. Rysz, G. Demeyer. Deep Learning Approach for SAR Image Retrieval for Reliable Positioning in GPS-Challenged Environments, *IEEE Transactions on Geoscience and Remote Sensing* (IF=8.2), v.62, 2024
13. K. Mansurov, A. Semenov, D. Grigoriev, A. Radionov, R. Ibragimov. Cryptocurrency exchange simulation, *Computational Economics* (IF=1.9), 2024
14. K. Mansurov, A. Semenov, D. Grigoriev, A. Radionov, R. Ibragimov. Impact of self–learning based high-frequency traders on the stock market, *Expert Systems with Applications* (IF=7.5), v. 232, 1205672, 2023

[1]The most recent impact factor (IF) is indicated for each journal, where available.

15. A. Kammerdiner, A. Semenov, E. L. Pasiliao. Landscape properties of the very large-scale and the variable neighborhood search metaheuristics for the multidimensional assignment problem, *Journal of Global Optimization* (IF=1.3) 88, 653–683, 2023
16. A. Kammerdiner, A. Semenov, E. L. Pasiliao. Flight from COVID-19: Multiscale and Multilayer Analyses of the Epidemic-Induced Network Adaptations, *Operations Research Forum* 4 (29), 2023
17. X. Xian, A. Semenov, Y. Hu, A. Wang, Y. Jin. Adaptive Sampling and Quick Anomaly Detection in Large Networks, *IEEE Transactions on Automation Science and Engineering* (IF=5.9), vol. 20, no. 4, pp. 2253-2267, 2023
18. W. Distaso, R. Ibragimov, A. Semenov, A. Skrobotov. COVID-19: Tail Risk and Predictive Regressions, *PLoS One* (IF=2.9), 17(12): e0275516, 2022
19. H. Heinonen, A. Semenov, J. Veijalainen, T. Hamalainen. A Survey on Technologies Which Make Bitcoin Greener or More Justified, *IEEE Access* (IF=3.4), vol. 10, pp. 74792-74814, 2022.
20. O. Shirokikh, G. Pastukhov, A. Semenov, S. Butenko, A. Veremyev, E. L. Pasiliao, V. Boginski, Networks of Causal Relationships in the U.S. Stock Market, *Dependence Modeling* (IF=0.6), v. 10, p. 177–190, 2022.
21. A. Kammerdiner, A. Semenov, E.L. Pasiliao, Multidimensional Assignment Problem for multipartite entity resolution, *Journal of Global Optimization* (IF=1.3) 84, 491–523, 2022.
22. Y. Zhang, C. Ridings, A. Semenov. What to Post? Understanding Engagement Cultivation in Microblogging with Big Data-Driven Theory Building, *International Journal of Information Management* (IF=20.1), 102509, 2022.
23. A. Semenov, M. Rysz, G. Pandey, G. Xu. Diversity in News Recommendations using Contextual Bandits, *Expert Systems with Applications* (IF=7.5), v. 195, 116478, 2022.
24. A. Jarynowski, A. Semenov, M. Kaminski, V. Belik. Mild Adverse Events of Sputnik V Vaccine in Russia: Social Media Content Analysis of Telegram via Deep Learning. *Journal of Medical Internet Research* (IF=5.8), 32 (11), e30529, 2021
25. V. Habic, A. Semenov, E.L. Pasiliao. Multitask deep learning for native language identification. *Knowledge-Based Systems* (IF=7.2), v. 209, 2020
26. A. Semenov, A. Veremyev, A. Nikolaev, E.L. Pasiliao, V. Boginski. Network-based indices of individual and collective advising impacts in mathematics. *Computational Social Networks*, 2020, 7: 1. DOI: 10.1186/s40649-019-0075-0
27. A. Veremyev, A. Semenov, E.L. Pasiliao, V. Boginski. Graph-Based Exploration and Clustering Analysis of Semantic Spaces. *Applied Network Science* (IF=1.3), special issue on machine learning with graphs, 2019, DOI: 10.1007/s41109-019-0228-y
28. G. Xu, A. Semenov, M. Rysz. An Integer Programming Formulation of the Key Management Problem in Wireless Sensor Networks. *Optimization Letters* (IF=1.3), 2019, DOI: 10.1007/s11590-019-01465-2
29. A. Semenov, A.V. Mantzaris, A. Nikolaev, A. Veremyev, J. Veijalainen, E.L. Pasiliao, V. Boginski. Exploring social media network landscape of post-Soviet space. *IEEE Access* (IF=3.4), 7: p. 411–426, 2019. DOI: 10.1109/ACCESS.2018.2885479
30. W. Geremew, N.M. Nam, A. Semenov, V. Boginski, E.L. Pasiliao. A DC programming approach for solving multicast network design problems via the Nesterov smoothing technique. *Journal of Global Optimization* (IF=1.3), 2018. DOI: 10.1007/s10898-018-0671-9
31. M. Samadi, R. Nagi, A. Semenov, A. Nikolaev. Seed activation scheduling for influence maximization in social networks, *Omega* (IF=6.7), Volume 77, 2018, p. 96–114
32. R. Gopalsamy, A. Semenov, E.L. Pasiliao, S. McIntosh, A. Nikolaev. Establishing Engagement as a Driver of Growth of Online Health Communities. *Journal of Medical Internet Research* (IF=5.8). 19(8):e304, 2017, DOI: 10.2196/jmir.724
33. D. Duvanova, A. Nikolsko-Rzhevskyy, A. Nikolaev, A. Semenov. Violent Conflict and Online Segregation: An analysis of social network communication across Ukraine's regions, *Journal of Comparative Economics* (IF=2.8), Volume 44, Issue 1, 2016, p. 163–181

34. D. Duvanova, A. Nikolaev, A. Semenov. Do social networks bridge political divides? The analysis of VKontakte social network communication in Ukraine. *Post-Soviet Affairs* (IF=2.5), p. 224–249, Volume 31, Issue 3, 2015, DOI:10.1080/1060586X.2014.918453
35. M. Stearns, S. Nambiar, A. Nikolaev, S. McIntosh, A. Semenov. Towards Evaluating and Enhancing the Reach of Online Health Forums as a Treatment of Smoking, *Network Modeling Analysis in Health Informatics and Bioinformatics* 3(1), 2014, p. 1–11
36. A. Semenov, J. Veijalainen. A modeling framework for social media monitoring, *Int. J. of Web Engineering and Technology* (IF=2.3), 2013, Vol.8, No.3, p. 217–49
37. A. Semenov, J. Veijalainen, J. Kyppö. Analysing the presence of school-shooting related communities at social media sites. *International Journal of Multimedia Intelligence and Security (IJMIS)*, 1(3), 2010, p. 232–268

◇ **Refereed Conference Articles**

38. A. Semenov, A. Veremyev, D. McMann, E. L. Pasiliao, V. Boginski, "Sparsified Neural Network Architectures Inspired by Optimal Strongly Attack Tolerant Network Configurations", Accepted. Proceedings of DIS 2025
39. A. Semenov, M. Hirsch, P. Pardalos, "Utilizing Large Language Models in Finding Roots to Nonlinear Systems of Equations: Solutions, Accuracy, and Prompt Design", Accepted. Proceedings of AAIM 2025
40. A. Semenov, C. Banerjee Mukherjee, V. Boginski, E. Pasiliao, T. Mukherjee, "Gradient Upsampling for Enhanced Image Resolution and Classification", Computational Data and Social Networks. CSoNet 2024
41. A. Veremyev, A. Semenov, E. Pasiliao, V. Boginski, "Graph-Based Approaches for Image Space Exploration and Representative Set Selection", Computational Data and Social Networks. CSoNet 2024
42. A. Baranwal, A. Semenov, P. Salgado, K. Priola, Y. Yao, G. Keenan, T. Macieira, "Leveraging Generative Pre-Trained Transformer Models for Standardizing Nursing Data", 12th IEEE International Conference on Healthcare Informatics (IEEE ICHI 2024), pp. 386-391, doi: 10.1109/ICHI61247.2024.0005, 2024
43. A. Jarynowski, Ł. Czekaj, A. Semenov, V Belik, "Multiplex Network Approach for Modeling the Spread of African Swine Fever in Poland", In: Hà, M.H., Zhu, X., Thai, M.T. (eds) Computational Data and Social Networks. CSoNet 2023. Lecture Notes in Computer Science, vol 14479. Springer, Singapore, 2024
44. Z. Qiang, E. L. Pasiliao, A. Semenov, Q. P. Zheng, "Incorporating Neighborhood Information and Sentence Embedding Similarity into a Repost Prediction Model in Social Media Networks", In: Dinh, T.N., Li, M. (eds) Computational Data and Social Networks . CSoNet 2022. Lecture Notes in Computer Science, vol 13831. Springer, Cham. 2023
45. M. Röckl, M. Paul, A. Jarynowski, A. Semenov, V. Belik, "Driving Factors of Polarization on Twitter During Protests Against COVID-19 Mitigation Measures in Vienna", In: Dinh, T.N., Li, M. (eds) Computational Data and Social Networks . CSoNet 2022. Lecture Notes in Computer Science, vol 13831. Springer, Cham. 2023
46. M. Borisov, V. Kolycheva, A. Semenov, D Grigoriev, "The Influence of Color on Prices of Abstract Paintings", In: Dinh, T.N., Li, M. (eds) Computational Data and Social Networks . CSoNet 2022. Lecture Notes in Computer Science, vol 13831. Springer, Cham. 2023
47. H. Heinonen, A. Semenov, "Recycling Hashes from Reversible Bitcoin Mining to Seed Pseudorandom Number Generators", International Conference on Blockchain (SCF ICBC 2021).
48. A. Jarynowski, A. Semenov, M. Wojta-Kempa, V. Belik, "Social cohesion during the stay-at-home phase of the first wave of the COVID-19 pandemic on Polish-speaking Twitter", In: Mohaisen, D., Jin, R. (eds) Computational Data and Social Networks. CSoNet 2021. Lecture Notes in Computer Science, vol 13116. Springer, Cham, 2021

49. A. Semenov, A. Veremyev, E.L. Pasiliao, V. Boginski, “Double-Threshold Models for Network Influence Propagation”, CSoNet 2020. Lecture Notes in Computer Science, vol 12575. Springer, Cham. 2020
50. A. Jarynowski, A. Semenov, V. Belik, “Protest Perspective Against COVID-19 Risk Mitigation Strategies on the German Internet”, CSoNet 2020. Lecture Notes in Computer Science, vol 12575. Springer, Cham. 2020
51. H. Heinonen, A. Semenov, V. Boginski, “Collective Behavior of Price Changes of ERC-20 Tokens”, CSoNet 2020. Lecture Notes in Computer Science, vol 12575. Springer, Cham. 2020
52. G. Laatikainen, A. Semenov, Y. Zhang, P. Abrahamsson, “What Key Aspects Do ICOs Reveal About Their Businesses?”, International Conference on Agile Software Development, pp. 41-49, 2020
53. G. Laatikainen, A. Semenov, Y. Zhang, P. Abrahamsson, “ICO Crowdfunding: Incentives, Pricing Strategy, Token Strategy and Crowd Involvement”, International Conference on Agile Software Development, pp. 32-40, 2020
54. A. Semenov, V. Boginski , E. L. Pasiliao, “Neural Networks with Multidimensional Cross-Entropy Loss Functions”, CSoNet 2019, International Conference on Computational Social Networks, pp. 57-62, 2019
55. A. Nikolaev, A. Semenov, E. L. Pasiliao, “Sampled Fictitious Play on Networks”, CSoNet 2019, International Conference on Computational Social Networks, pp. 33-44, 2019
56. G. Pandey, A. Baranwal, A. Semenov, “Identifying Images with Ladders using Deep CNN Transfer Learning”, In: Czarnowski I., Howlett R., Jain L. (eds) Intelligent Decision Technologies 2019 (Proceedings of the 11th KES International Conference on Intelligent Decision Technologies), vol 142.
57. A. Semenov, A. Veremyev, A. Nikolaev, E. L. Pasiliao, V. Boginski, “Ranking Academic Advisors: Analyzing scientific advising impact using MathGenealogy social network”, CSoNet 2018, International Conference on Computational Social Networks, pp. 437-449, 2018
58. O. Shirokikh, G. Pastukhov, A. Semenov, S. Butenko, A. Veremyev, E. L. Pasiliao, V. Boginski, “The Network of Causal Relationships in the U.S. Stock Market”, CSoNet 2018 (short), LNCS 11280, pp. 541 - 542, 2018
59. A. Semenov, G. Pandey, D. Kotkov, “Markov Decision Processes for Fake Accounts Detection”, CSoNet 2018 (short), LNCS 11280, pp. 539 - 540, 2018
60. D. Kotkov, G. Pandey, A. Semenov, “Gaming Bot Detection: A Systematic Literature Review”, CSoNet 2018, International Conference on Computational Social Networks, pp. 247-258, 2018
61. G. Pandey, D. Kotkov, A. Semenov, “Recommending Serendipitous Items using Transfer Learning”. In Proceedings of the 27th ACM International Conference on Information and Knowledge Management (CIKM ’18). ACM, New York, NY, USA, pp. 1771-1774, 2018
62. D. Köse, A. Semenov, T. Tuunanen, “Utilitarian Use of Social Media Services: A Study on Twitter”. In Proceedings of the 51st Hawaii International Conference on System Sciences (HICSS 2018), pp. 1046-1055, 2018
63. A. Romanov, A. Semenov, J. Veijalainen, “Revealing Fake Profiles in Social Networks by Longitudinal Data Analysis”. In Proceedings of the 13th International Conference on Web Information Systems and Technologies - Volume 1: WEBIST, ISBN 978-989-758-246-2, pp. 51-58, 2017
64. A. Romanov, A. Semenov, O. Mazhelis, J. Veijalainen, “Detection of Fake Profiles in Social Media - Literature Review”. In Proceedings of the 13th International Conference on Web Information Systems and Technologies - Volume 1: WEBIST, ISBN 978-989-758-246-2, pp. 363-369, 2017
65. B. Zhang, D. Kotkov, J. Veijalainen, A. Semenov, “Online Stakeholder Interaction of Some Airlines in the Light of Situational Crisis Communication Theory”, Conference on e-Business, e-Services and e-Society, 2016
66. A. Semenov, A. Nikolaev, A. Veremyev, V. Boginski, E.L. Pasiliao, “Analysis of Viral Advertisement Re-Posting Activity in Social Media”. In: Nguyen H., Snasel V. (eds) Computational Social Networks. CSoNet 2016. Lecture Notes in Computer Science, vol 9795. Springer, 2016

67. D. Köse, J Veijalainen, A Semenov, "Identity Use and Misuse of Public Persona on Twitter", WEBIST 2016: Proceedings of the 12th International conference on web information systems and technologies. Volume 1, 978-989-758-186-1, 2016
68. J Veijalainen, A. Eremeev, G. Korneev, A. Semenov, "The Spanning Tree based Approach for Solving the Shortest Path Problem in Social Graphs", Proceedings of WEBIST 2016, ISBN: 978-989-758-186-1, 2016
69. A. Farseev, D. Kotkov, A. Semenov, J. Veijalainen, Tat-Seng Chua, "Cross-Social Network Collaborative Recommendation", Proceedings of the ACM Web Science Conference, 38, 2015
70. J. Veijalainen, A. Semenov, M. Reinikainen, "User influence and follower metrics in a large Twitter dataset", WEBIST 2015: Proceedings of the 11th International conference on web information systems and technologies, 2015
71. B. Zhang, A. Semenov, M. Vos, J. Veijalainen, "Understanding Fast Diffusion of Information in the Social Media Environment. A Comparison of Two Cases", In ICC 2014 Conference Proceedings, pp. 522-533, 2014
72. M. Hajeer, D. Dasgupta, A. Semenov, J. Veijalainen, "Distributed evolutionary approach to data clustering and modeling". in 2014 IEEE Symposium on Computational Intelligence and Data Mining (CIDM), pp. 142 - 148, 2014
73. A. Semenov, J. Veijalainen, M. Hajeer, D. Dasgupta, "Political Communities in Russian Portion of Livejournal," in 2014 International Conference on Computational Science and Computational Intelligence (CSCI), vol. 1, pp. 314 - 319, 2014
74. A. Semenov, A. Nikolaev, J. Veijalainen, "Online Activity Traces Around a "Boston Bomber"", International Symposium on Foundation of Open Source Intelligence and Security Informatics, In Proceedings of 2013 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Niagara Falls, ON, Canada, pp. 1050 - 1053, 2013
75. A. Semenov, "Analysis of services in Tor network". 12th European Conference on Information Warfare and Security ECIW-2013, Jyvaskyla, Finland, 2013
76. B. Bisong, E. Asonganyi, A. Gontarenko, A. Semenov, J. Veijalainen, "Mobile Healthcare System for Sub-Saharan Africa", MOBIHEALTH 2012 proceedings, Paris, France, 2012
77. A. Semenov, J. Veijalainen, "A Repository for multirelational dynamic networks", International Workshop on Complex Social Network Analysis (CSNA), The 2012 International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2012, Istanbul, Turkey DOI: 10.1109/ASONAM.2012.174, 2012
78. A. Semenov, J. Veijalainen, "Ontology-Guided Social Media Analysis, System Architecture", SCOE Special Session, In conjunction with the 14th International Conference on Enterprise Information Systems - ICEIS 2012, Wroclaw, Poland DOI: 10.5220/0004157303350341, 2012
79. A. Semenov, J. Veijalainen, A. Boukhanovsky, "A generic Architecture for a Social Network Monitoring and Analysis System". 14th International Conference on Network-Based Information Systems (NBiS), pp. 178-185, DOI: 10.1109/NBiS.2011.52, 2011
80. J. Veijalainen, A. Semenov, J. Kyppö, "Tracing potential school shooters in the digital sphere". Proc. Of ISA 2010 conference, Miyazaki, Japan, June 2010. CCIS # 76, Springer Verlag 2010, pp. 163-178. DOI: 10.1007/978-3-642-13365-7_16, 2010

◇ **Refereed Book Chapters**

81. B. Robertson, A. Semenov, T. Skluzacek, H. Coburn, M. Miller, "Nightmare Disorder: An Overview," in Handbook of AI and Data Sciences for Sleep Disorders, Editors: R. B. Berry, P. M. Pardalos, X. Xian, 2024
82. M. Rysz, G. Xu, A. Semenov, "A Two-Stage Stochastic Programming Approach for the Key Management q-Composite Scheme," in Handbook of Trustworthy Federated Learning, Editors: My T. Thai, Hai N. Phan, Bhavani Thuraisingham, 2024

83. W. Trevena, A. Semenov, P. Pardalos, I. Kotsireas, M. J. Hirsch, "Employing the Cloud for finding Solutions to Large Systems of Nonlinear Equations," Editors: Rentsen Enkhbat, Altannar Chinchuluun, Panos Pardalos, Springer, 2023
84. A. Semenov, M. Rysz, G. Demeyer, "Synthetic Aperture Radar Image Based Navigation Using Siamese Neural Networks," in Synthetic Aperture Radar (SAR) Data Applications, Editors: Maciej Rysz, Arsenios Tsokas, Kathleen Dipple, Kaitlin Fair, Panos Pardalos, Springer, 2022
85. A. Romanov, A. Semenov, J. Veijalainen, "Repository for Multirelational Dynamic Networks," in Encyclopedia of Social Network Analysis and Mining, R. Alhajj and J. Rokne, Eds. New York, NY: Springer New York, pp. 1–16, 2017

◇ **Other Peer-Reviewed Publications**

86. In Finnish: M. Lonkila, E. Luhtakallio, T. Ylä-Anttila, P. Jokivuori, A. Semenov. Justification networks: how to analyze the interrelationships of justifications presented in public discourses (Oikeuttamisverkostot: miten analysoida julkisissa keskusteluissa esitettyjen oikeutusten keskinäisiä suhteita.) *Sosiologia*, 58(3), 2021, pp. 269-284.
87. In Russian: A. Semenov, A. Boukhanovsky, Metrological analysis in social networks: Izv.vuzov, Priborostrienie, 2011
88. In Russian: A. Semenov, A. Boukhanovsky, Metrology for high-performance computations and networks, Vestnik ITMO, 2008

◇ **Journal Papers Under Revision**

1. E. Coler, A. Melnik, A. Lotfi, D. Moradi, B. Ahiadu, P. Wender Portal Gomes, A. Patan, P. Dorrestein, S. Barnes, V. Boginski, A. Semenov, A. Aksenov, Ordering molecular diversity in untargeted metabolomics via molecular community networking, under review, Nature Biotechnology

◇ **Edited Special Issues**

1. *Computational Optimization and Applications*, Special Issue on Global Optimization: PanOptiC 2023, V. Boginski, A. Kammerdiner, P. Krokhmal, A. Semenov (eds.), to appear in 2024.
2. *Energy Systems*, Special Issue on Blockchain and Energy SysTems (ENSY-BEST), Q. Zheng, A. Semenov (eds.), 2021.

Presentations, Short Courses, Invited Speaking Engagements

1. *Utilizing Large Language Models in Finding Roots to Nonlinear Systems of Equations: Solutions, Accuracy, and Prompt Design* (plenary talk), the 19th International Conference on Algorithmic Aspects in Information and Management (AAIM 2025), Ulaanbaatar, Mongolia, June 2025
2. *Minimum Edge Compact Spanner Problem* (with T. Mukherjee, A. Veremyev, E.L. Pasiliao. V. Boginski), 2025 Industrial Engineering and Operations Management International Conference, Sorocaba, Brazil, May 13-15, 2025
3. *Identifying adverse drug events using social media data*, 2024 Digital Epidemiology Symposium, Gainesville, FL, USA, November 2024
4. *Global Optimization Approaches to Solving Large Nonlinear Equation Systems: Applications and Techniques* (with W. Trevena, M. Hirsch, P. Pardalos), INFORMS 2024, Seattle, WA, USA, October 2024
5. *Identifying Change-Points and Explosive Bubbles in Time Series via Mixed Integer Programming*, Third Workshop on Recent Trends in Machine Learning and Risk Management, Stony Brook University, NY, USA, October 2024
6. *Detecting Change-Points and Explosive Bubbles in Time Series Using Mixed Integer Programming*, Quantitative Finance Program Webinars, Stony Brook University, NY, USA, September 2024
7. *Utilizing Cloud Computing for Global Optimization of Large Systems of Nonlinear Equations* (with W. Trevena, M. Hirsch, P. Pardalos), Optimization, Analytics, and Decisions in the Big Data Era In Honor of the 70-th Birthday of Panos Pardalos, Halkidiki, Greece, June 2024

8. *Detecting Bubbles in Financial Time Series Data through Mixed Integer Programming* (with A. Skrobotov, A. Prokhorov, P. Radchenko), ISF 2024, Dijon, France, June 2024
9. *Mixed Integer Optimization for time series change points detection* (with A. Skrobotov, A. Prokhorov, P. Radchenko), CFE 2023, Berlin, Germany, December 2024
10. *Adaptive Sampling and Quick Anomaly Detection in Large Networks* (With X. Xian, Y. Hu, A. Wang, Y. Jin), INFORMS 2023, Phoenix, AZ, USA, October 2023
11. *Examining the Influences of Twitter Bots during the 2022 U.S. Midterm Election* (presented by R. Wang, with A. Nikolaev and Y. Ophir, 2023 American Political Science Association Annual Meeting & Exhibition, Los Angeles, CA, USA, August 2023
12. *Mixed Integer Optimization for time series change points detection* (with A. Skrobotov, A. Prokhorov, P. Radchenko), ISF 2023, Charlottesville, VA, USA, June 2023
13. *Molecular network-based optimization of annotations in GC-MS* (with A. Aksenov, V. Boginski, A. Melnik), ASMS Conference on Mass Spectrometry and Allied Topics, Houston, TX, June 4 - 8, 2023
14. *Impact of Geographic Factors on Friendship: a Case of VK.com*, 8th International Academic Conference "e-methodology", Wroclaw, Poland, 21 April, 2023
15. *Cascade Prediction in Networks Via Euclidean Embedding.* 21st Copper Mountain Conference on Multigrid Methods, Copper Mountain, CO, USA, 16-20 April 2023
16. *Solving Large Systems of Nonlinear Equations with Global Optimization in the Cloud*, PanOptiC View on Global Optimization 2023, Gainesville, FL, USA, 9-10 March 2023
17. *Mixed Integer Optimization for time series change points detection*, CFE 2022 (hybrid event, London, UK), December 2022
18. *Mixed Integer Optimization for time series change points detection*, Mathematics of Risk – 2022 (MATRIX), Creswick, Victoria, Australia, November 2022
19. *Mixed Integer Optimization for time series change points detection*, INFORMS (virtual event), 24-27 October, 2021
20. *Mixed Integer Optimization for time series change points detection*, International Symposium on Forecasting (virtual event), 27-30 June, 2021
21. *Participatory epidemiology in time of COVID-19 on the example of Sputnik V mild adverse events in Russian Telegram*, 6th International Academic Conference "e-methodology", Wroclaw, Poland (virtual event), 21 May 2021
22. *Diversity in news recommendations using contextual bandits*, 14th Conference on Computational and Financial Econometrics, session *Advances in robust estimation and inference: Theory and applications II*, co-authored with G. Pandey, M. Rysz, G. Xu, December 19 - 21, 2020
23. *Art price determinants: Author, artwork, and auction features*, 14th Conference on Computational and Financial Econometrics, session *Advances in robust estimation and inference: Theory and applications I*, co-authored with O. Kuldyshev, D. Grigoriev, V. Kolycheva, presented by O. Kuldyshev, December 19 - 21, 2020
24. *Identifying important nodes in input-output networks*, 13th Conference on Computational and Financial Econometrics, session *Robustness to shocks and dependence in networks and financial data*, London, UK, December 14 - 16, 2019
25. *MEAFA professional development workshop on Machine Learning on Text Documents*, co-instructor, University of Sydney Business School, Sydney, Australia, December 2 - 6, 2019
26. *Engaging Team Formation Problem for Reach Maximization of Online Health Communities*, INFORMS 2019 conference, Seattle, USA, October 24, 2019
27. *Bandits for real time recommendations*, invited talk at Sanoma Media Group, Helsinki, Finland, October 10, 2019

28. *Application of Transfer and Multitask Learning to Native Language Identification*, 7th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, July 31 - August 1, 2019
29. *Neural Networks with Multidimensional Cross Entropy Loss Function*, 7th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, July 31 - August 1, 2019
30. *Reinforcement learning for measuring and maximizing customer trust*, Invited seminar presentation, The Twelfth MEAFA Research Meeting, University of Sydney Business School, Sydney, February 2019
31. *MEAFA professional development workshop on Text analytics using Python*, co-instructor, University of Sydney Business School, Sydney, Australia, December 3 - 7, 2018
32. *Analysis of transactions of energy-related ERC20 tokens*, talk at Blockchain & Energy SysTems (BEST2019) Conference, Orlando, Florida, USA, January 18 - 19, 2019
33. *Blockchain based decentralized microgrid energy distribution system* (with H. Heinonen), Blockchain & Energy SysTems (BEST2019) Conference, Orlando, Florida, USA, January 18 - 19, 2019
34. *Analysis of dynamics of blockchain peer-to-peer network topologies* Invited speaker, IEEE Day 2018, Jyvaskyla, Finland, October 2, 2018
35. *Q-Learning on Networks with Attribute-Rich Nodes*, 6th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, July 31 - August 2, 2018
36. *Sampled Fictitious Play on Networks* (co-author), 6th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, July 31 - August 2, 2018
37. *Information Diffusion Prediction Based on Graph Neural Networks* (co-author), 6th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, July 31 - August 2, 2018
38. *Data-driven approach to solving the MAP with the long short-term memory (LSTM) networks and Pointer networks* (co-author), 6th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, July 31 - August 2, 2018
39. *MEAFA professional development workshop on social media data extraction, management and analysis* co-instructor, University of Sydney Business School, Sydney, Australia, November 27 - 30, 2017
40. *Mobilizing Russia Online*, talk at the 17th Annual Aleksanteri Conference, Russia's Choices for 2030, Helsinki, Finland, October 27, 2017
41. *Network Analysis of Social Media Portal VK.com* (co-author), 5th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida, Research & Engineering Education Facility (REEF), Shalimar, FL, August 1 - 3, 2017
42. *Analysis of Dynamics of Blockchain Peer-to-Peer Network Topologies*, 5th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida, Research & Engineering Education Facility (REEF), Shalimar, FL, August 1 - 3, 2017
43. *Cascade Prediction in Social Networks via Euclidean Embedding* (co-author), 5th Annual Meeting of the AFRL Mathematical Modeling and Optimization Institute, University of Florida, Research & Engineering Education Facility (REEF), Shalimar, FL, August 1 - 3, 2017
44. *Introduction to Blockchain*, seminar, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, 2017
45. *Introduction to Web Crawling and data extraction*, invited 2 day tutorial: Summer 2015, University of Florida Research & Engineering Education Facility (REEF), Shalimar, FL, 2015

46. *Introduction to Crawling*, invited 3 day tutorial, Summer 2013, Department of Industrial and Systems Engineering, University at Buffalo, NY, USA, 2013

Courses Taught

- ◇ Decision Making with Deep Reinforcement Learning, Fall 2025 (University of South Florida)
- ◇ OEM Capstone Project, Fall 2024 - Spring 2025 (University of Florida)
- ◇ Systems Architecture, Spring 2025 (University of Florida)
- ◇ Data Analytics for ISE, Fall 2024 (University of Florida)
- ◇ Systems Management, Summer 2024 (University of Florida)
- ◇ Systems Architecture, Spring 2024 (University of Florida)
- ◇ Operations Research II, Spring 2024 (University of Florida)
- ◇ Short Course: Introduction to Systems Design, Summer 2023 (University of Florida)
- ◇ Decision Making Under Uncertainty, Spring 2023 (University of Florida)
- ◇ Operations Research II, Spring 2023 (University of Florida)
- ◇ Decision Making Under Uncertainty, Spring 2021 (University of Florida)
- ◇ Operations Research II, first module, Spring 2021 (University of Florida)
- ◇ Cloud Computing, Spring 2018 (University of Jyväskylä)
- ◇ Cloud Computing, Spring 2017 (University of Jyväskylä)
- ◇ Business Intelligence and Big Data, Fall 2016 (University of Jyväskylä)
- ◇ Cloud Computing, Spring 2016 (University of Jyväskylä)
- ◇ Business Intelligence and Big Data, Fall 2015 (University of Jyväskylä)
- ◇ Cloud Computing, Spring 2015 (University of Jyväskylä)
- ◇ Business Intelligence and Big Data, Fall 2014 (University of Jyväskylä)
- ◇ Databases and Data Mining (teaching assistant, advanced course), Fall 2013 (University of Jyväskylä)
- ◇ Databases and Data Mining (teaching assistant, advanced course), Spring 2012 (University of Jyväskylä)
- ◇ Multimedia Databases (teaching assistant, advanced course), Spring 2010 (University of Jyväskylä)

Student advising

- **PhD Students**
  - ◇ Henri Heinonen, Money Innovations Enabled by Blockchain Technologies: from Cryptocurrency to Cryptomoney, (Advisor, University of Jyväskylä, Finland, graduated in 2022)
  - ◇ Donald McMann, started in 2024, University of Florida
- **PhD Committee Membership**
  - ◇ Songzi Wu (Committee Member, University of Florida)
  - ◇ William Trevena, Simulation, Graph Models, and Natural Language Processing in Healthcare (Committee Member, University of Florida, graduated in 2024)
- **Master's Students (Thesis)**
  - ◇ Andrei Eremeev, The spanning tree based approach for solving the shortest path problem in social graphs, (co supervised with G. Korneev from ITMO), graduated in 2016
  - ◇ Matias Oksa, Web API development and integration in post-production phase web applications, graduated in 2016
  - ◇ Dicle Berfin Kose, Public Identity Usage on Online Social Networks, graduated in 2016

- ◇ Janne Poikolainen, Authorized Authentication Evaluation Framework for Constrained Environments (co-supervised with O. Mazhelis), graduated in 2016
- ◇ Pentti Laitinen, Vulnerabilites in the wild: Detecting vulnerable web applications at scale, graduated in 2018
- ◇ Ahmad Salameh, Spreading Ideologies through Tweets: Examining Extreme and Moderate Muslims Usage of Twitter, graduated in 2018
- ◇ Juha Jussila, HTTP cookie weaknesses, attack methods and defense mechanisms: a systematic literature review, graduated in 2018
- ◇ Rakibul Hassan, Blockchain technology based system to reduce the risk of fake diploma and to increase the credibility, visibility and reputation of the diploma, graduated in 2019
- ◇ Sauli Rajala, Cross platform mobile applications development, graduated in 2019
- ◇ Otto Buure, Challenges in Moving to Cloud Computing Environment: Case Finnish Teleoperator, graduated in 2020

Professional Service Activities

– **National/International**

- ◇ Associate Editor, *Journal of Combinatorial Optimization*, 2019–present
- ◇ Associate Editor, *IET Blockchain*, 2020–present
- ◇ Editorial Board Member, *Scientific Reports*, 2023–present
- ◇ Associate Editor, *Energy Systems*, 2023–present
- ◇ Graduate Faculty, University of Central Florida
- ◇ Guest Editor, *Energy Systems, Special Issue on Blockchain and Energy Systems*, 2019
- ◇ Guest Editor, *Computational Optimization and Applications, Special Issue on Global Optimization: PanOptiC 2023*, 2023
- ◇ Grant Reviewer: Fondecyt (Chile)
- ◇ Reviewer for the journals: *ACM TKDD, INFORMS Journal on Computing, IISE Transactions on Healthcare Systems Engineering, Electronic Journal of Statistics, Future Generation Computer Systems, IEEE Access, Algorithms, Energy Systems, Applied Soft Computing, Computational Social Networks, Expert Systems With Applications, Symmetry, Machine Learning and Knowledge Extraction, Remote Sensing, Computers and Security, Scientific Reports, International Journal of Production Economics, Econometrics and Statistics, IEEE Transactions on Games, Operations Research Forum, Optimization Letters, Socio-Economic Planning Sciences, Dependence Modeling, Social Network Analysis and Mining, Journal of Global Optimization, Applied Numerical Mathematics, Journal of Combinatorial Optimization, Journal of Computational Science, PeerJ*
- ◇ Reviewer for the conferences: *AMA 2020, ICIS 2019, IEEE ICC 2018 Communication and Information Systems Security Symposium, ICDCS 2019, WEBIST, PACIS, ECIS 2012, ICIS 2015, FRUCT*
- ◇ TPC Co-Chair, CSoNet 2025
- ◇ Organizer/Chair of special track “Information Spread in Social and Data networks”, CSoNet 2024
- ◇ Organizer/Chair of special track “Information Spread in Social and Data networks”, CSoNet 2023
- ◇ Organizer/Chair of special track “Information Spread in Social and Data networks”, CSoNet 2022
- ◇ Organizer/Chair of special track “Information Spread in Social and Data networks”, CSoNet 2021
- ◇ 17th International Conference on Computational and Financial Econometrics (CFE 2023): Organizer of the session
- ◇ INFORMS 2025: Session chair
- ◇ INFORMS 2024: Session chair
- ◇ INFORMS 2023: Session chair
- ◇ INFORMS 2022: Session chair

- ◇ INFORMS 2021: Session chair, two sessions
- ◇ Co-organizer/PC Member "3rd International Conference on Econometrics and Business Analytics (iCEBA)", Tashkent, Uzbekistan
- ◇ Co-organizer/PC Member "2nd International Conference on Econometrics and Business Analytics (iCEBA)", Yerevan, Armenia
- ◇ Co-organizer/PC Member "1st Inaugural International Conference on Econometrics and Business Analytics (iCEBA)", St. Petersburg, Russia
- ◇ Technical Program Committee member, International Conference on Blockchain 2022
- ◇ Program Committee member, FRUCT conference
- ◇ Program Committee member, the 39th IEEE International Conference on Distributed Computing Systems, Track "Uncertainty in Distributed Computing Systems"
- ◇ Program Committee member, CSoNet 2019 conference
- ◇ Organizer/Chair of special track "Information Spread in Social and Data networks", CSoNet 2020
- ◇ Organizer/Chair of special track "Analysis of misinformation in the social media", CSoNet 2019, November 18 - 20, 2019, Ho Chi Minh City, Vietnam
- ◇ Program Committee member, Blockchain and Energy SysTems (BEST) conference.
- ◇ Organizer/Chair of special track "Analysis of misinformation in the social media", CSoNet 2018, December 18 - 20, 2018, Shanghai, China
- ◇ Organizing Committee member (conference secretary) the 22nd FRUCT conference, May 15-18, 2018, Jyvaskyla, Finland
- ◇ Organizing Committee member (conference secretary) the 19th FRUCT conference, November 9-11, 2016, Jyvaskyla, Finland
- ◇ Organizing Committee member, "Social Media Analytics" Workshop, April 2015, Saint Petersburg, Russia.

– **Internal at University of Florida**

- ◇ Committee member: Application review committee (2023-2024) Committee member: Faculty Search Committee (2023) Committee member: College AI Committee (2020 - 2021)
- ◇ Committee member: Faculty Search Committee (2020 - 2021)
- ◇ Committee member: Faculty Search Committee (2020 - 2021)

– **Internal at University of Jyväskylä**

- ◇ JYU Summer School course coordinator, Summer School, August 2019
- ◇ JYU Summer School course coordinator, Summer School, August 2017
- ◇ JYU Summer School course coordinator, Summer School, August 2016
- ◇ JYU-ITMO double degree master's program counsellor, 2016

Awards

1. IEOM Young Research Professor Award, recognized at the 2025 Industrial Engineering and Operations Management International Conference, May 13-15, 2025
2. Mobility Grant recipient, University of Jyväskylä, €7K, 2015
3. COMAS doctoral study grant recipient, University of Jyväskylä, 2010-2013
4. CIMO doctoral study grant recipient, €6K , 2009

Skills

- **Languages:** English, Finnish, Russian
- **Computer:** C, C++, C#, Python, JavaScript, PHP, x86 Assembler, Lisp. Databases: PostgreSQL, MySQL, NoSQL (Elasticsearch, MongoDB, Redis), PostGIS, temporal databases, graph databases, distributed databases (such as blockchain). MapReduce, Hadoop, Spark. Machine Learning, Deep Learning (TensorFlow, Keras, PyTorch, others), MLFlow, AirFlow. Web programming: social media API, OAuth, REST API, Twitter Bootstrap, frameworks such as Flask, JS frameworks: React.js, Angular.js, d3.js, others. Mathematical programming solvers: Gurobi, Pyomo. Cloud computing platforms: AWS Lambda, AWS EC2, AWS S3, and other AWS services; DataBricks, Google Speech-to-Text API, others