Chrysafis Vogiatzis

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CONTACT INFORMATION

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RESEARCH INTERESTS

Operations research, mathematical programming, combinatorial optimization, network optimization, decision support systems, evacuation and disaster management.

EDUCATION

Department of Industrial and Systems Engineering,
University of Florida, Gainesville, FL, USA

- *Ph.D.* in Industrial and Systems Engineering **Jan 2010 – Aug 2014**
  Dissertation: *Exact and Heuristic Approaches to Solving Sensor Placement, Routing, and Tracking Problems*
  Advisor: Dr. Panos M. Pardalos
- *M.Sc.* in Industrial and Systems Engineering **Jan 2010 – Aug 2012**

Department of Electrical and Computer Engineering,
Aristotle University of Thessaloniki, Thessaloniki, Greece

- *Dipl.Eng.* in Electrical and Computer Engineering **Sep 2002 – Nov 2009**
  Thesis: Iterative distributed decomposition algorithm for solving large–scale transportation problems.
  Advisor: Dr. Athanasios Migdalas

PUBLICATIONS

ARTICLES

All student names are underlined. Undergraduate students are double underlined.

- Forouzandeh Shahraki, A., Yadav, O.P., **Vogiatzis, C.**, *Selective maintenance optimization for multi-state systems considering stochastically dependent components and stochastic imperfect maintenance actions*, Reliability Engineering & System Safety, 2020.
- Rahim-Taleqani, A., Hough, J., and **Vogiatzis, C.**, *Maximum closeness centrality k-clubs: a study of dock-less bike sharing*, Journal of Advanced Transportation, 2020.
- Aslaam, N. M., Szmerekovsky, J., and **Vogiatzis, C.**, *Plant capacity level and location as a mechanism for sustainability in biomass supply chain*, submitted, Energy Systems, accepted, 2019.
- **Vogiatzis, C.** and Camur, C.M., *Identification of essential proteins using induced stars in protein-protein interaction networks*, INFORMS Journal on Computing, accepted, 2019.
- Faiz, T., **Vogiatzis, C.**, and Alam, N., *A column generation algorithm for vehicle scheduling and routing problems*, Computers and Industrial Engineering, accepted, 2019.
- Rasti, S., **Vogiatzis, C.**, *A survey of computational methods in protein–protein interaction networks*, Annals of Operations Research, Vol. 276 (1-2), pp. 35–87, 2019.
- Yasui, N., **Vogiatzis, C.**, Yoshida, R., and Fukumizu, K., *imPhy: Imputing Phylogenetic Trees with Missing Information using Mathematical Programming*, IEEE/ACM Transactions on Computational Biology and Bioinformatics, accepted, 2018 (code available at: `https://github.com/yasuiniko/imPhy/`).

- Suehr, S. and **Vogiatzis, C.**, *Now you see me: Identifying duplicate network personas*, European Intelligence and Security Informatics Conference (EISIC) 2018, accepted, 2018.

  Best Paper Award winner for EISIC 2018.

- Aslaam, N. M., **Vogiatzis, C.**, and Szmerekovsky, J., *Biomass feedstock supply chain network design with conversion incentives*, Energy Policy, Vol. 116, pp. 39–49, 2018.

- **Vogiatzis, C.** and Walteros, J.L., *Integer Programming Models for Detecting Graph Bipartitions with Structural Requirements*, Networks, Vol. 71, No. 4, pp. 432–450, 2018.

- Yoshida, R., Fukumizu, K., and **Vogiatzis, C.**, *Multilocus Phylogenetic Analysis with Gene Tree Clustering*, Annals of Operations Research, accepted, 2017.

  `https://doi.org/10.1007/s10479-017-2456-9`

- **Vogiatzis, C.**, Veremyev, A., Pasiliao, E.L., and Pardalos, P.M., *Integer Programming Approaches for Finding the Most and Least Central Cliques*, Optimization Letters, Vol. 9, No. 4, pp. 615–633, 2015.

- **Vogiatzis, C.**, Pasiliao, E.L., and Pardalos, P.M., *Graph Partitions for the Multidimensional Assignment Problem*, Computational Optimization and Applications, Vol. 58, No. 1, pp. 205–224, 2014.

- Walteros, J.L., **Vogiatzis, C.**, Pasiliao, E.L., and Pardalos, P.M., *Integer Programming Models for the Multidimensional Assignment Problem with Star Costs*, European Journal of Operational Research, Vol. 235, No. 3, pp. 553–568, 2014.

- Davis, J.R., Paramygin, V.A., **Vogiatzis, C.**, Sheng, Y.P., Pardalos, P.M., and Figueiredo, R.J., *Strengthening the resiliency of a coastal transportation system through integrated simulation of storm surge, inundation, and non-recurrent congestion in Northeast Florida*, Journal of Marine Science and Engineering, Vol. 2, No. 2, pp. 287–305, 2014.

- **Vogiatzis, C.**, Yoshida, R., Aviles-Spadoni, I., Imamoto, S., and Pardalos, P.M., *Evacuation planning for livestock in case of natural and man-made emergencies*, International Journal of Mass Emergencies and Disasters, Vol. 31, No. 1, pp. 25–37, 2013.

Books/Special Issues Edited

- Pardalos, P.M., **Vogiatzis, C.**, and Walteros, J.L., *Selected Papers from the Learning and Intelligent Optimization 8 Conference*, Special Issue at Annals of Mathematics and Artificial Intelligence, Vol. 76, No. 1-2, 2016.

- Pardalos, P.M., Resende, M.G.C., **Vogiatzis, C.**, and Walteros J.L., *Learning and Intelligent Optimization: 8th International Conference, Lion 8, Gainesville, FL, USA, February 16-21, 2014 Revised Selected Papers*, Lecture Notes in Computer Science Vol. 8426, Springer, 2014.

- **Vogiatzis, C.**, Walteros, J.L., and Pardalos, P.M., *Dynamics of Information Systems: Computational and Mathematical Challenges*, Springer Proceedings in Mathematics & Statistics Vol. 105, Springer, 2014.

Book Chapters and Conference Proceedings

- Meda, H., Davis, L., and **Vogiatzis, C.**, *Analysis of Hurricane Matthew 2016 Data to Estimate Airline Passengers Disruption*, IEEE International Conference on Big Data, 2020.

- Achrekar, O. and **Vogiatzis, C.**, *Evacuation trees with contraflow and divergence considerations*, In: Kotsireas I., Nagurney A., Pardalos P. (eds) Dynamics of Disasters. Springer Optimization and Its Applications, Vol. 140, pp. 1–46, Springer, Cham, 2018.

  Vogiatzis C., Pardalos P.M. (2016) Evacuation Modeling and Betweenness Centrality.

- **Vogiatzis, C.** and Pardalos, P.M., *Evacuation and betweenness centrality*, In: Kotsireas I., Nagurney A., Pardalos P. (eds) Dynamics of Disasters—Key Concepts, Models, Algorithms, and Insights. Springer Proceedings in Mathematics & Statistics, Vol. 185, pp. 345–359, Springer, Cham, 2016.

- **Vogiatzis, C.**, Walteros, J.L., and Pardalos, P.M., *Evacuation through clustering techniques*, in Models, Algorithms, and Technologies for Network Analysis, pp. 185–198, 2013.
- **Vogiatzis, C.** and Pardalos, P.M., *Combinatorial Optimization Techniques in Transportation and Logistics Networks*, in Handbook of Combinatorial Optimization, Pardalos, Panos M., Du, Ding-Zhu; Graham, Ronald L. (Eds.), Vol. 3, pp 673–722, 2013.
- Davis, J. R., Zheng, Q. P., Paramygin, V. A., Tutak, B.. **Vogiatzis, C.**, Sheng, Y. P., Pardalos, P. M., and Figueiredo, R. J., *Development of a Multimodal Transportation Educational Virtual Appliance (MTEVA) to study congestion during extreme tropical events*, Proceedings of the Transportation Research Board (TRB) 91st Annual Meeting, 12–1119, 2012.
- **Vogiatzis, C.** *Sensors in Transportation and Logistics Networks*, in Sensors: Theory, Algorithms, and Applications, Springer Optimization and Its Applications, Volume 61, Part 3, 145–163, 2012.
- Davis, J. R., Paramygin, V. A., Figueiredo, R. J., Sheng, Y. P., **Vogiatzis, C.** and Pardalos, P. M., *The Coastal Science Educational Virtual Appliance (CSEVA)*, Estuarine and Coastal Modeling, Malcolm L. Spaulding ed., ASCE, 2011.

Articles In Preparation/Submitted

- Camur, C.M., **Vogiatzis, C.**, and Sharkey, T., *The star degree centrality problem: a Benders decomposition approach*, submitted, February 2020.
- Faiz, T., **Vogiatzis, C.**, and Alam, N., *Robust two echelon vehicle and drone routing for post disaster humanitarian operations*, submitted, January 2020.
- Sarowar, M., **Vogiatzis, C.**, and Alam, N., *A primal-dual interior point method for a novel type-2 second order cone optimization*, submitted, January 2020.
- Rasti, S., **Vogiatzis, C.**, *Novel group centrality metrics for detecting essentiality in protein-protein interaction networks*, in preparation, target journal: Networks.
- Ameen, G., Drader, T., Solanki, S., Sager-Bittara, L., Steffenson, B., Kleinhofs, A., **Vogiatzis, C.**, and Brueggeman, R., *rcs5-mediated spot blotch resistance in barley is conferred by wall-associated kinases that function as dominant susceptibility genes*, in preparation, target journal: Proceedings of the National Academy of Sciences.

Open-source software

- Gazala Ameen, **Chrysafis Vogiatzis**, Shyam Solanki, & Robert Brueggeman, (2018). Gazala-Ameen/PPIN: Dependencies and run requirements of PPIN (Version PPIN.01). Zenodo.
  `https://doi.org/10.5281/zenodo.1943607`
  Download from: `https://github.com/Gazala-Ameen/PPIN`
- Niko Yasui, **Chrysafis Vogiatzis**, Ruriko Yoshida, & Kenji Fukumizu, (2018). imPhy.
  Download from: `https://github.com/yasuiniko/imPhy/`

Sponsored Research

- **$461,226** (in total, co-PI) NSF, *Innovations in Graduate Education: Developing a Research Engineer Identity* (**awarded**, dates: 04/2019–03/2022).
- **$212,000** (in total, PI) Army Research Lab, *Contextualizing knowledge and perception in dynamic environments using interdependent network analysis* (**awarded**, dates: 10/2018–08/2020).
- **$56,034.72** (in total, subaward) Department of Homeland Security (DHS), *Center of Excellence for Accelerating Operational Efficiency (CAOE)* (**awarded**, 05/2018–07/2018): Funded two undergraduate students, Ms. Ameenah Al-Raheem and Mr. Carter Koehler and studied two network optimization problems with applications in social network analysis.
- **$5,040** (in total, sole PI) by Swanson Health Products (local industry), *Process Improvement based on Lean Principles* (**awarded**, 01/2016–05/2016): Funded an undergraduate student, Ms. Hannah Schnepf, and studied improvements for the process of launching new products. Decreased the time from receipt to launch by an average of 4 weeks.

Honours and Awards

- **Graduate Teacher of the Year 2019** for teaching graduate classes in Industrial & Systems Engineering.
- **Undegraduate Teacher of the Year 2019** for teaching undergraduate classes in Industrial & Systems Engineering.
- **Trusted CI Open Science Cybersecurity Fellowship 2019-2020** (member of the inaugural cohort of fellows).
- **Best Paper Award 2018** with Sean Suehr for Now You See Me: Identifying Duplicate Network Personas in EISIC 2018.
- **University of Florida Teaching Award Winner 2012** for teaching computer programming for engineering students.
- **Teaching Excellence Award (2012)** for teaching in the Department of Industrial and Systems Engineering.
- **Graduate Student Teaching Award 2010-2011** by the Department of Industrial and Systems Engineering.
- **Gerondelis Foundation Scholarship** of 5,000$ for excellence in studies (2011).
- **Awards in the Hellenic Mathematical Society Competition** for all prefectures except for Attiki and Thessaloniki in 1998 (1st), 1999 (1st), and 2000 (3rd).
- **Integrity and Work Ethic** Gator Attribute nomination by the Department of Industrial and Systems Engineering (2012, 2013, and 2014).
- **INFORMS 2013 Future Academician Colloquium**, nominated by the Department of Industrial and Systems Engineering.
- **Faculty mentor** of University of Florida International Center Outstanding International Student Award Recipient, Ms. Areej Al-Bahar (2015).

Teaching Experience

I only include the last five years of evaluations. I have taught courses on *Production and Inventory Control, Quantitative Modeling, and Probabilistic & Deterministic Methods* (North Dakota State University, NDSU), *Stochastic Operations Research, Queuing Theory, Information Technology, and Integer & Network Optimization* (North Carolina A&T State University, NCAT), and Analysis of Network Data (University of Illinois at Urbana-Champaign, UIUC). A full teaching history, along with all semester evaluations since 2010, is available upon request.

- Fall 2019:
  1. Analysis of Data (IE 300, UIUC)
     Evaluations: **4.7/5.0**
  2. Analysis of Network Data (IE 532, UIUC)
     Evaluations: **4.9/5.0**
- Summer 2019:
  1. Stochastic Operations Research (ISEN 435, NCAT)
     Evaluations: N/A
- Spring 2019:
  1. Integer & Network Optimization (ISEN 841, NCAT)
     Evaluations: **4.80/5.00** (University Mean: 4.22, College Mean: 4.13)
  2. Stochastic Operations Research (ISEN 435, NCAT)
     Evaluations: **4.75/5.00** (University Mean: 4.22, College Mean: 4.13)
- Fall 2018:
  1. Queuing Theory (ISEN 843, NCAT)
     Evaluations: **4.76/5.00** (in all categories) (University Mean: 4.20, College Mean: 4.19)
  2. Information Technology (ISEN 380, NCAT)
     Evaluations: **4.84/5.00** (in all categories) (University Mean: 4.20, College Mean: 4.19)

- Summer 2018:
  1. Stochastic Operations Research (ISEN 435, NCAT)
     Evaluations: **4.88/5.00** (in all categories)
- Fall 2017:
  1. Probabilistic & Deterministic Methods (IME 771, NDSU)
     Evaluations: **4.89/5.00** (College Mean: 4.10, Department Mean: 4.16)
  2. Production & Inventory Control (IME 480, NDSU)
     Evaluations: **4.90/5.00** (College Mean: 4.10, Department Mean: 4.16)
- Fall 2016:
  1. Quantitative Modeling (IME 770, NDSU)
     Evaluations: **4.91/5.00** (College Mean: 4.17, Department Mean: 4.22)
  2. Production & Inventory Control (IME 480, NDSU)
     Evaluations: **4.93/5.00** (College Mean: 4.17, Department Mean: 4.22)
- Spring 2016:
  1. Probabilistic & Deterministic Methods (IME 771, NDSU)
     Evaluations: **4.56/5.00** (College Mean: 4.11, Department Mean: 4.15)
- Fall 2015:
  1. Production & Inventory Control (IME 480, NDSU)
     Evaluations: **4.85/5.00** (College Mean: 4.05, Department Mean: 3.90)
- Summer 2015:
  1. Facilities Planning and Work Design (EIN 4360C, UF)
     Evaluations: **5.00/5.00** (College Mean: 4.13, Department Mean: 4.91)
  2. Computer Programming for Engineers (VB.NET, COP 2271, UF)
     Evaluations: **4.93/5.00** (College Mean: 4.13, Department Mean: 4.91)
- Spring 2015:
  1. Models for Supply Chain Management (ESI 6323, UF)
     Evaluations: **4.83/5.00** (College Mean: 4.14, Department Mean: 4.15)
  2. Quality Control (ESI 4221C, UF)
     Evaluations: **4.96/5.00** (College Mean: 4.14, Department Mean: 4.15)
  3. Industrial Systems Simulation (ESI 4523, UF)
     Evaluations: **5.00/5.00** (College Mean: 4.14, Department Mean: 4.15)

Students advised

- MS students (NDSU):
  - Md. Mahbubar Rahman, August 2017, "Two-echelon vehicle routing problems using UAVs", current position: Ph.D. student at North Dakota State University.
  - Rahul Banothu, December 2017, "Vulnerability Assessment of Interdependent Power and Communications Networks Under Varying Level of Interdependency".
  - Omkar Achrekar, May 2018, "Evacuation Trees with Contraflow and Divergence Considerations".
- PhD students (NDSU):
  - N Muhammad Aslaam Mohamed Abdul Ghani, May 2018, "Essays on biomass supply chain network design", current position: Lecturer at the Universiti Malaysia Terengganu, Malaysia.
  - Saeid Rasti, expected May 2020.
- MS students (NCAT):

  - Sean Suehr, December 2019.
- PhD students (NCAT):
  - Harshitha Meda, expected December 2021.

Academic Positions

Teaching Assistant Professor	Industrial and Enterprise Systems Eng. University of Illinois at Urbana-Champaign Urbana, IL	Aug 2019–
Assistant Professor	Industrial and Systems Eng. North Carolina A&T State University Greensboro, NC	Jan 2018–Aug 2019
Assistant Professor	Industrial and Manufacturing Eng. North Dakota State University Fargo, ND	Aug 2015–Jan 2018
Adjunct Lecturer	Industrial and Systems Engineering University of Florida Gainesville, FL	Aug 2014–Aug 2015
Graduate Student	Center for Applied Optimization University of Florida Gainesville, FL	Jan 2010–Aug 2014
Research Assistant **Summer Intern**	Mathematical Modeling and Optimization Institute Air Force Research Lab Shalimar, FL	Summer 2012, 2013, 2014

Conferences organized

- 2nd Annual Meeting of the Mathematical Modeling and Optimization Institute, 2014. Organizer.
- LION 8 (Learning and Intelligent OptimizatioN), 2014. Local organizing committee.
- 1st Annual Meeting of the Mathematical Modeling and Optimization Institute, 2013. Local organizing committee.
- 5th International Conference on the Dynamics of Information Systems, 2013. Organizer.
- 3rd Conference on Optimization Methods and Software, 2012. Local organizing committee.
- 1st International Conference on Network Analysis, 2011. Organizer.
- The 2nd World Congress on Global Optimization, 2010. Local organizing committee.

Scientific and professional societies

- INFORMS: Institute for Operations Research and the Management Sciences
- IISE: Institute of Industrial and Systems Engineers
- SIAM: Society for Industrial and Applied Mathematics
- ASEE: American Society for Engineering Education

Professional service

- Member of the Diversity, Equity, and Inclusion committee of INFORMS (2020–).
- Media coordinator of the INFORMS *Junior Faculty Interest Group* (JFIG) (2017-2019).
- SMART Scholarship Evaluator (2018, 2019).
- Graduate student poster competition judge at NC A&T (2018, 2019).
- Chair and member of the NDSU College of Engineering Research & Graduate Committee, responsible for awarding two faculty and one student research awards every year, and promoting high-quality, high-impact research (Chair: 2016-2017, Member: 2015-2017).
- Member of the Steering Committee of the NDSU College of *NAE Engineering Grand Challenges Scholars Program* (2016-2017).
- Graduate Program Coordinator for Industrial & Manufacturing Engineering at North Dakota State University (2016-2017).
- Faculty Adviser for the *IISE* chapter at North Dakota State University (2015-2017).
- I have served as a reviewer for a wide variety of scientific journals in my area of interest, including (in the last year):
  - Networks
  - OMEGA
  - Annals of Operations Research
  - European Journal of Operational Research
  - PLOS ONE
  - Computational Optimization and Applications
  - Journal of Combinatorial Optimization
  - Journal of Global Optimization
  - Energy Systems
  - Optimization Letters
- Reviewer for *Mathematical Reviews*.

Languages

- English
- French
- Italian
- Spanish
- Greek