

N. Orkun Baycik, PhD Candidate

Rensselaer Polytechnic Institute | Department of Industrial and Systems Engineering
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EDUCATION

Rensselaer Polytechnic Institute

Doctor of Philosophy – Industrial and Systems Engineering Expected 05/2018

- Thesis Title: Interdicting Layered Networks: Reformulations, Algorithms and Applications
- Thesis Advisor: Dr. Thomas Sharkey
- Committee Members: Dr. John Mitchell (RPI), Dr. William Wallace (RPI), Dr. Chase Rainwater (University of Arkansas)

University of Arkansas

Master of Science – Industrial Engineering 05/2014

- Thesis Title: Robust Network Interdiction with Invisible Interdiction Assets
- Thesis Advisor: Dr. Kelly Sullivan
- Committee Members: Dr. Edward Pohl, Dr. Chase Rainwater

Çankaya University (Turkey)

Bachelor of Science- Industrial Engineering (Full Scholarship) 2008 - 2012

Çankaya University (Turkey)

Bachelor of Science - Computer Engineering (Double Major)(Full Scholarship) 2009 – 2012

RESEARCH INTERESTS

Methodological Interests

Operations Research, Network Optimization, Integer Programming, Markov Decision Processes

Applications

Resilient Infrastructure, Disrupting Illegal Smuggling Networks, Interdependent Infrastructures, Cyber-Physical Systems

APPOINTMENTS

Rensselaer Polytechnic Institute – Department of Industrial and Systems Engineering

Graduate Research Assistant December 2014 - Present

Rensselaer Polytechnic Institute – Department of Industrial and Systems Engineering

Graduate Teaching Assistant August 2014 –December 2014

University of Arkansas – Department of Industrial Engineering

Graduate Teaching Assistant January 2014 – May 2014

Graduate Research Assistant August 2012 - December 2013

PUBLICATIONS

Accepted Papers

N. O. Baycik, T. C. Sharkey, C.E. Rainwater. Interdicting Layered Physical and Information Flow Networks. *IISE Transactions*, 50(4):316-331, 2018.

Papers Under Review

N. O. Baycik, K. M. Sullivan. “Robust location of hidden interdictions on a shortest path network.”

Submitted to IISE Transactions on July 10, 2017 (Under first round of revisions as of March 26, 2018)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater. “A Markov Decision Process Model for Balancing Surveillance and Arrests in Law Enforcement Efforts against Illegal Drug Trafficking.”

Submitted to Socio-Economic Planning Sciences on September 8, 2017

N. O. Baycik, T. C. Sharkey. “Analyzing the damage on interdependent critical infrastructures given the outage reports from the customers.”

Submitted to Journal of Infrastructure Systems on March 15, 2018

HONORS AND AWARDS

Research paper highlighted in ISE Magazine, March 2018.

ISE Graduate Student Research Award, Department of Industrial and Systems Engineering, RPI, 2018

The Founders Award of Excellence, Rensselaer Polytechnic Institute, 2017

Graduate Student Professional Meeting Travel Grant, Office of Graduate Education, Rensselaer Polytechnic Institute, 2017

INFORMS Conference Travel Grant, Department of Industrial and Systems Engineering, RPI, 2017

Outstanding Contributions to Education Award, Department of Industrial and Systems Engineering, RPI, 2017

Honorable Mention for Student Poster Competition, IISE Annual Meeting Doctoral Colloquium, Pittsburgh, PA, 2017

IISE Annual Meeting Doctoral Colloquium Attendee, Pittsburgh, PA, 2017

IISE Annual Meeting Travel Grant, Department of Industrial and Systems Engineering, RPI, 2017

INFORMS Conference Travel Grant, Department of Industrial and Systems Engineering, RPI, 2015

Çankaya University (Turkey), Ranked 1st in the School of Engineering and Architecture, 2012

Çankaya University (Turkey), Ranked 1st in the Department of Industrial Engineering, 2012

TEACHING ASSISTANTSHIP

Rensselaer Polytechnic Institute

- ISYE 4410/6600: Design and Analysis of Supply Chains (Video Tutorials: “<http://homepages.rpi.edu/~baycin/SCTutorials.html>”)

Rensselaer Polytechnic Institute

- ISYE 4600/6610: Operations Research Methods (Fall 2014)

University of Arkansas

- INEG 3613: Introduction to Operations Research (Spring 2014)

TECHNICAL SKILLS

Optimization Tools: AMPL, IBM ILOG CPLEX Optimizer *Computer Programming:* C++

CONFERENCE PRESENTATIONS

N. O. Baycik, T. C. Sharkey (2017). “Analyzing the damage on interdependent critical infrastructures given the outage reports from the customers,” 2017 INFORMS Annual Meeting, Oct 22nd-25th, Houston, TX. (invited)

N. O. Baycik, K.M. Sullivan (2017), “Robust location of hidden interdiction on a shortest path network,” 2017 INFORMS Annual Meeting, Oct 22nd-25th, Houston, TX. (invited)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater (2017). “A Markov Decision Process Model for Balancing Surveillance and Arrests in Law Enforcement Efforts against Illegal Drug Trafficking,” The Industrial and Systems Engineering Research Conference, May 20th-23rd, Pittsburgh, PA. (invited)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater (2016). “Novel Bilevel Programming Approaches for Interdicting Multi-Tiered Illegal Supply Chains,” 2016 INFORMS Annual Meeting, Nov 13th-16th, Nashville, TN. (invited)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater (2016). “Novel Bilevel Programming Approaches for Interdicting Multi-Tiered Illegal Supply Chains,” The Industrial and Systems Engineering Research Conference, May 21st-24th, Anaheim, CA. (invited)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater (2016). “Novel Bilevel Programming Approaches for Interdicting Multi-Tiered Illegal Supply Chains,” Graduate Research Symposium at Rensselaer Polytechnic Institute, May 14th, Troy, NY. (contributed)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater (2016). “Novel Bilevel Programming Approaches for Interdicting Multi-Tiered Illegal Supply Chains,” The Command, Control and Interoperability Center for Advanced Data (CCICADA) Retreat, April 28th-30th, Piscataway, NJ. (contributed)

N. O. Baycik, T. C. Sharkey, C.E. Rainwater (2015). "Novel Bilevel Programming Approaches for Interdicting Multi-Tiered Illegal Supply Chains," 2015 INFORMS Annual Meeting, Nov 1st-4th, Philadelphia, PA. (invited)

N. O. Baycik, K.M. Sullivan (2014), "Robust Network Interdiction with Invisible Interdiction Assets," The Industrial and Systems Engineering Research Conference, May 31st - June 3rd, Montreal, Canada. (invited)

N. O. Baycik, K.M. Sullivan (2013), "Robust Network Interdiction with Invisible Interdiction Assets," 2013 INFORMS Annual Meeting, Oct 6th - 9th, Minneapolis, MN. (invited)

CERTIFICATES

Introduction to Research Ethics (University of Arkansas-Graduate School)	2012
Authorship and Publication Issues (University of Arkansas-Graduate School)	2012
Research Misconduct: Policies & Consequences (University of Arkansas-Graduate School)	2012

PROFESSIONAL MEMBERSHIPS

- Institute for Operations Research and Management Science (INFORMS) 2013 - present
- Institute of Industrial and Systems Engineers (IISE) 2013 - present

SERVICE

- Student volunteer as a session monitor at INFORMS Annual Meeting in November, 2016 in Nashville, TN
- Journal Referee: Journal of Global Optimization (2016), Police Practice and Research: An International Journal (2016).