



# Rensselaer

## Department of Industrial and Systems Engineering

N. Orkun Baycik, PhD Candidate

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### EDUCATION

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#### 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

### APPOINTMENTS

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#### 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

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N. O. Baycik, T. C. Sharkey, C.E. Rainwater. “Interdicting Layered Physical and Information Flow Networks.”  
*Forthcoming in IISE Transactions*

N. O. Baycik, K. M. Sullivan. “Robust location of hidden interdictions on a shortest path network.”  
*Submitted to IISE Transactions on July 10, 2017*

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 in September 8, 2017*

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

## HONORS AND AWARDS

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**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 Contribution 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 1<sup>st</sup> in the School of Engineering and Architecture, 2012

**Çankaya University (Turkey)**, Ranked 1<sup>st</sup> in the Department of Industrial Engineering, 2012

## TEACHING ASSISTANTSHIP

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### 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

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

## CONFERENCE PRESENTATIONS

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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 22<sup>nd</sup>-25<sup>th</sup>, 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 22<sup>nd</sup>-25<sup>th</sup>, 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 20<sup>th</sup>-23<sup>rd</sup>, 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 13<sup>th</sup>-16<sup>th</sup>, 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 21<sup>st</sup>-24<sup>th</sup>, 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 14<sup>th</sup>, 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 28<sup>th</sup>-30<sup>th</sup>, 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 1<sup>st</sup>-4<sup>th</sup>, 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 31<sup>st</sup> - June 3<sup>rd</sup>, Montreal, Canada. (invited)

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

## **CERTIFICATES**

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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**

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

## **SERVICE**

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- 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).