Angelo Mele

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ACADEMIC APPOINTMENTS

Associate Professor
Johns Hopkins University, Carey Business School, Baltimore, MD
August 2018 - present

Researcher, Data Science and AI Institute
Johns Hopkins University, Baltimore, MD
August 2023 - present

Member, Institute for Data-Intensive Engineering and Science (IDIES)
Johns Hopkins University, Baltimore, MD
December 2017 - present

Member of Scientific Core, Hopkins Population Center
Johns Hopkins University, Baltimore, MD
May 2017 - present

Assistant Professor
Johns Hopkins University, Carey Business School, Baltimore, MD
August 2011 - July 2018

VISITING POSITIONS

Visiting Scholar
University of Pennsylvania, Department of Economics (Philadelphia, PA)
August 2023 - December 2023

Visiting Scholar
Universita' di Cagliari, Department of Economics (Cagliari, Italy)
July 2017

EDUCATION

University of Illinois at Urbana-Champaign, Champaign, IL
Ph.D., Economics, December 2011

New York University, New York City, NY
M.A., Economics, May 2005

Bocconi University, Milan, Italy
B.A., Economics (Summa cum Laude), February 2002

RESEARCH INTERESTS

Fields: Applied Econometrics, Machine Learning, Labor Economics, Applied Microeconomics
Topics: Econometrics of network models, Economics of social interactions, Racial Segregation and Homophily, Computational Methods, Experiments on Networks

PUBLICATIONS

Authors are listed in alphabetical order, unless explicitly noted

1. **Spectral Estimation for Large Stochastic Blockmodels with Nodal Covariates** (2023), with Lingxin Hao, Joshua Cape, Carey Priebe *(*lead author)*
   Journal of Business and Economic Statistics 41(4), pp 1364-1376

2. **A Model of Inter-organizational Network Formation** (2023) with Shweta Gaonkar
Journal of Economic Behavior and Organization, 214, pp. 82-104

3. **Approximate Variational Estimation for a Model of Network Formation** (2023) with Lingjiong Zhu
The Review of Economics and Statistics, 105(1), pp. 113-124

4. **Homophily and Community Structure at Scale: An Application to a Large Professional Network** (2023) with Juan Nelson Martinez Dahbura, Shota Komatsu, and Takanori Nishida
AEA Papers and Proceedings **2023**, 113, pp, 156-160
available at: https://doi.org/10.1257/pandp.20231094

5. **A Structural Model of Homophily and Clustering in Social Networks** (2022)
Journal of Business and Economic Statistics, 40(3), pp. 1377-1389

6. **On Spectral Algorithms for Community Detection in Stochastic Blockmodel Graphs with Vertex Covariates** (2022) with Cong Mu, Lingxin Hao, Joshua Cape, Avanti Athreya, Carey Priebe *(*second author)*
Transactions of Network Science and Engineering, 9(5), pp. 3373-3384

7. **Does School Desegregation Promote Diverse Interactions? An Equilibrium Model of Segregation within Schools** (2020)
American Economic Journal: Economic Policy, 12(2), pp. 228-257

8. **A Structural Model of Dense Network Formation**, (2017)
Econometrica, 85(3), pp. 825-850

9. **Viral Altruism? Charitable Giving and Social Contagion in On-Line Networks** (2016) with Nicola Lacetera and Mario Macis
Sociological Science, 3(11), pp. 202-238

10. **Structural Models of Complementary Choices** (2014), with Steve Berry, Ahmed Khwaja, Vineet Kumar, Andres Musalem, Kenneth C. Wilbur, Greg Allenby, Bharat Anand, Pradeep Chintagunta, W. Michael Hanemann, Przemek Jeziorski
Marketing Letters, 25(3), pp. 245-256

11. **Poisson Indices of Segregation** (2013)
Regional Science and Urban Economics, 43(1), pp. 65-85
Young Spatial Econometrician Award 2008, Spatial Econometrics Association

OTHER PUBLICATIONS

1. **A Structural Model of Firm Collaborations with Unobserved Heterogeneity**, (2019) with Shweta Gaonkar (abstract)
Academy of Management Annual Meeting Proceedings 2019
available at: https://doi.org/10.5465/AMBPP.2019.13243abstract

2. **A Strategic Model of Inter-Organizational Network Formation**, (2019) with Shweta Gaonkar (abstract)
Academy of Management Annual Meeting Proceedings 2019
available at: https://doi.org/10.5465/AMBPP.2019.10749abstract

3. **Novelty and Market Success: Evidence from the Movie Industry**, (2018) with Shweta Gaonkar and Sharon Kim (abstract)
Academy of Management Annual Meeting Proceedings 2018
available at: https://doi.org/10.5465/AMBPP.2018.12567abstract

4. **Segregation in social networks: a structural approach**
Proceedings of the Behavioral and Quantitative Game Theory - Conference on Future Directions, BQGT '10, Newport Beach, California, USA, May 14-16, 2010. ACM 2010, ISBN 978-1-60558-919-0 Article No.: 86. pages 1 (abstract)
available at: https://doi.org/10.1145/1807406.1807492

WORKING PAPERS

1. **A Strategic Model of Software Dependency Networks**, with Cornelius Fritz, Co-Pierre Georg and Michael Schweinberger, *submitted*
   https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4318082

2. **Latent Communities in Employment Relations and Wage Distributions: A Network Approach** with Lingxin Hao, Avanti Athreya, Joshua Cape, Cong Mu and Carey Priebe, *submitted*

3. **A Structural Model of Business Card Exchange Networks** with Juan Nelson Martinez Dahbura, Takanori Nishida and Shota Komatsu
   https://arxiv.org/abs/2105.12704

4. **A Structural Model of Firm Collaborations with Unobserved Heterogeneity** with Shweta Gaonkar
   https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3267047

5. **Creativity and Market Success: Evidence from the Movie Industry** (with Shweta Gaonkar), *Reject and Resubmit at Strategic Entrepreneurship Journal*

SELECTED WORK IN PROGRESS

1. **Network (Video)games**, with Micah Pollak and Phil Solimine

2. **Spectral Estimation of a Dynamic Network Formation Model** with Avanti Athreya, Joshua Cape, Cong Mu, Lingxing Hao and Carey Priebe (**Lead Author*)

3. **A Variational Exchange Algorithm for Bayesian Estimation of ERGM Models**

4. **Microeconomic Foundations of a Latent Position Network Model**

5. **Scalable Two-steps Algorithms for Estimation of Large Network Models**

PERMANENT WORKING PAPERS

- Approximate Variational Inference for a Model of Social Interactions

- Racial Segregation and Public School Expenditure (with Eliana La Ferrara)

- Who's Afraid of the Big Bad Wolf? Do Pedophiles live close to schools?

OPEN SOURCE SOFTWARE
bigergm: an R package to fit, simulate and diagnose Hierarchical Exponential-Family Models for big networks
https://cran.r-project.org/web/packages/bigergm/index.html

dinnet: an R package for spectral estimation of dynamic networks models
https://github.com/meleangelo/dinnet

lighthergm: an R package for scalable estimation of Hierarchical ERGMs (in collaboration with Sansan, Inc.)
https://github.com/sansan-inc/lighthergm

grdpg: an R package for estimation of generalized random dot product graphs with discrete nodal covariates
https://github.com/meleangelo/grdpg

mfergm: an R package for variational approximations of (some) ergms
https://github.com/meleangelo/mfergm

netnew: R replication package for "A structural model of dense network formation"
https://github.com/meleangelo/netnew

segnet: R replication package for "Does School Desegregation Promote Diverse Interactions? An Equilibrium Model of Segregation Within Schools"
https://github.com/meleangelo/segnet

INVITED SEMINAR PRESENTATIONS (including scheduled)
2025: George Mason University

2024: Virginia Tech, Boise State University, University of Washington, University of Glasgow.

2023: Georgetown University, University of Pennsylvania, Bocconi University.

2021: University of Pennsylvania.

2020: University of Southern California, West Virginia University.

2019: Insper, Sao Paulo School of Economics, University of Colorado Boulder, Chinese University of Hong Kong, Singapore Management University, Cornell University.

2018: Northwestern University, Catholic University of America, Johns Hopkins University - Social Network Analysis Coffee, Florida State University, London School of Economics.

2017: University of Southern California.

2016: Boston University.

2015: UC Berkeley.

2014: University of Sassari, University of Cagliari, University of Chicago, Universit de Laval.

2013: University of Surrey.

2012: Indiana University, University of Maryland - Smith School of Business.

2011: Universit du Quebec a Montreal, Federal Reserve Board, Southern Methodist University, Johns Hopkins University - Carey Business School, University of Pennsylvania, University of Notre Dame.

2010: University of Illinois at Urbana-Champaign.

CONFERENCE PRESENTATIONS (* invited presentation)
2024: Econometric Society Interdisciplinary Frontiers (ESIF) conference on Economics and AI+ML, Cornell University (Ithaca, NY), *Conference on Peer Effects and Networks, University of Iowa (Iowa City, IA), *Empirical Methods in Game Theory (Stony Brook, NY), *Cowles Foundation Conference in Econometrics (New Haven, CT), Midwest Econometrics Group (Lexington, KY).

2023: Network Science in Economics, Virginia Tech (Blacksburg, VA), *Southern Economics Association Annual Meeting (New Orleans, LA), *Conference on Labor Economics, Universit de Laval (Quebec City, Canada), *6th International Conference on Econometrics and Statistics - EcoSta (Tokyo, Japan), *American Economic Association Annual Meeting (New Orleans, LA).

2022: Barcelona Summer Forum - Networks (Barcelona, Spain), Network Economics: Applications and Challenges, Network Science in Economics, University of Chicago (Chicago, IL), *125th Anniversary of the Department of Economics, University of Illinois at Urbana-Champaign (Champaign, IL), *Southern Economics Association Annual Meeting (Houston, TX).

2021: European Winter Meeting of the Econometrics Society (virtual), Network Science in Economics, University of Chicago (Chicago, IL - virtual).

2020: Econometric Society World Congress (virtual).

2019: CMStatistics (London, UK), Network Science in Economics, Indiana University (Bloomington, IN), *Network Econometrics Juniors' Conference, Northwestern University (Evanston, IL).

2018: Southern Economics Association Annual Meeting (Washington, DC), NBER Summer Institute - Labor Studies (Cambridge, MA), International Conference on Computational Social Science (Evanston, IL), International Association of Applied Econometrics (IAAE) Annual Conference (Montreal, Canada), North American Summer Meeting of the Econometric Society (UC Davis, CA), Society of Labor Economists (SOLE) Annual Meeting (Toronto, Canada), Network Science in Economics (Nashville, TN), Econometric Society Winter Meeting (Philadelphia, PA).

2017: North American Regional Social Networks (NASN) Conference, International Network for Social Network Analysis (INSNA) (Washington, DC), UIUC Econometrics Alumni Conference (Urbana, IL).

2016: Berkeley/Cemmap Conference on Econometrics and Statistics of Networks (Berkeley, CA).

2015: Association for Computing Machinery (ACM) Conference - Workshop on Social and Information Networks (Portland, OR), UIUC Econometrics Alumni Conference (Urbana, IL), AEA Annual Meeting (Boston, MA).

2014: AEA Annual Meeting (Philadelphia, PA).

2013: Southern Economic Association Annual Meeting (Tampa, FL), Midwest Econometrics Group Annual Meeting (Indiana University, Bloomington IN), Conference on Bayesian Methods in Microeconometric Modeling (Caltech, CA), *Choice Symposium (Noordwijk, The Netherlands).

2012: UECE (Lisbon, Portugal), Info-Metrics Conference on Econometrics of Networks (Washington, DC), North American Winter Meeting of the Econometric Society (Chicago, IL).

2011: INFORMS Annual Meeting (Charlotte, NC), Conference on Networks in Cambridge (Cambridge, UK), Public Economic Theory Meeting (Bloomington, IN), NBER-NSF Seminar on Bayesian Inference in Econometrics and Statistics (SBIES) (St. Louis, MO).
2010: Midwest Econometrics Group Meeting (St. Louis, MO), Add Health Users Conference (Bethesda, MD), Society of Economic Dynamics (SED) Meeting (Montreal, Canada), Behavioral and Quantitative Game Theory: Conference on Future Directions (Newport Beach, CA), Midwest Graduate Student Summit on Regional, Population, and Health Economics (West-Lafayette, IN), *NET Institute Conference (New York, NY).
2009: Washington University Graduate Students Conference (St. Louis, MO), Econometric Society European Meeting (Barcelona, Spain).
2008: Spatial Econometrics Association Conference (New York, NY), Econometric Society Summer Meeting (Pittsburgh, PA), Society of Labor Economists (SOLE) Conference (New York, NY), Midwest Economic Association Conference (Chicago, IL).
2007: European Economic Association Conference (Budapest, Hungary), La Pietra-Villa Mondragone Workshop (Florence, Italy), European Society of Population Economics Conference (Chicago, IL).
2006: Washington University Graduate Student Conference (St. Louis, MO).

INVITED PAPER DISCUSSIONS

"Central Limit Theory for Model of Strategic Network Formation", by Konrad Menzel, Empirical Methods in Game Theory (Stony Brook, NY), July 20-21, 2024

"Social Interactions with Endogenous Group Formation", by Shuyang Sheng and Xiaoting Sun, Interactions: Bringing Together Econometrics and Applied Economics 2023, Northwestern University, September 22-23, 2023

"An estimable model of production interactions in endogenous networks", by Giacomo de Giorgi, Michele Pellizzari and Tomas Rodriguez-Barraquer, AEA Annual Meeting 2021 (virtual)

"An Estimable General-Equilibrium Structural Model of Immigrants Neighborhood Sorting and Social Integration", by Yujung Hwang, H2LED 2019, Johns Hopkins Carey Business School, May 9, 2019

"Using aggregated relational data to feasibly identify network structure without network data", by Emily Breza, Arun G. Chandrasekhar, Tyler H. McCormick and Mengjie Pan, AEA Annual Meeting 2019 (Atlanta, GA)

"Strategic Network Formation with Many Agents", by Konrad Menzel, INET Conference on networks, University of Southern California (Los Angeles, CA), November 20, 2015

"Hey Look at Me: The Effect of Giving Circles on Giving", by Dean Karlan and Margaret A. McConnell, AEA Annual Meeting 2014

"Two Sided Platforms and HIV Incidence among the Digitally Disadvantaged", by Brad Greenwood and Ritu Agarwal, Workshop on Health IT and Economics (WHITE) (Washington, DC), November 15-16, 2013

"Vertical Integration, Exclusivity and Game Sales Performance in the US Video Game Industry", by Ricard Gil and Frederic Warzynski, NET Institute Conference (New York, NY), November 19, 2010.

GRANTS

Heterogeneity", (with Shweta Gaonkar), Co-Principal Investigator, Net Institute, New York University - Stern School of Business, May 2018 - September 2018, Amount: $3,000

IDIES Seed Grant 2018, *"Modeling Dynamics of Social Networks: Data-intensive Structural Modeling and Analysis of Simulated Network Structures"*, (with Lingxin Hao and Gerard Lemson), Principal Investigator, Johns Hopkins Institute for Data-Intensive Engineering and Science (IDIES), April 2018 - April 2019, Amount: $25,000

Black and Decker Research Grant 2017, *"Network Formation and Influence among Medical Device Firms"*, (with Shweta Gaonkar), Johns Hopkins Carey Business School, April 2017-December 2017, Amount: $2,500

Supplemental RA support 2016, *"Network Formation and Influence among Medical Device Firms"*, (with Shweta Gaonkar), Johns Hopkins Carey Business School, Fall 2016, $3,000

NET Institute Summer Grant 2013, *"Approximate Variational Inference for a Model of Social Interactions*, Principal Investigator, Net Institute, New York University - Stern School of Business, May 2013 - September 2013, Amount: $3,000

NET Institute Summer Grant 2012, "*Viral Altruism? A Natural Field Experiment of Social Contagion on On-Line Networks,* (with Nicola Lacetera and Mario Macis), Co-Principal Investigator, Net Institute, New York University - Stern School of Business, May 2012 - September 2012, Amount: $7,500

NIH Travel Grant, to participate to the Add Health Users Conference 2010, NIH Main Campus, Bethesda (MD), National Institute of Health

NET Institute Summer Grant 2010, *"A structural model of segregation in social networks"*, Principal Investigator, Net Institute, New York University - Stern School of Business, May 2010 - September 2010, Amount: $3,000.

R. W. Harbeson Dissertation Grant 2009-2011, *"Essays on the economics of racial segregation"*, University of Illinois - Urbana-Champaign, August 2009 - May 2011, Amount: $2,000

Robert Ferber Award 2008-2009, University of Illinois - Urbana-Champaign, August 2008 - August 2009, Amount: $3,000

TEACHING

Johns Hopkins University, Carey Business School
<u>Master in Finance</u>: **Non-linear Econometrics for Finance**, 2020-present
<u>Master in Finance</u>: **Statistical Analysis**, 2018
<u>Global MBA</u>: **Quantitative Methods**, 2012-2018
<u>Master in Finance</u>: **Economics for Decision Making**, 2014
<u>Global MBA</u>: **Networked Organizations**, 2012-2017
<u>Executive MBA</u>: **Networked Organizations**, 2012-2015

University of Illinois at Urbana-Champaign
<u>Graduate</u>: Teaching Assistant, **Microeconomic Theory**, 2009-2010
<u>Undergraduate</u>: Teaching Assistant for **Principles of Microeconomics, Business Statistics, Intermediate Microeconomic Theory, Labor Economics**

INVITED SHORT COURSES

Johns Hopkins University, Department of Sociology
Guest Lecture, **Computational Social Science**, March 11, 2019

Universita di Cagliari, Department of Economics
Social and Economic Networks, July 10-13, 2017

University of Illinois - Urbana-Champaign, Department of Economics
A quick overview of Markov Chain Monte Carlo methods, July 13, 2010

PROFESSIONAL SERVICE

Conference Organization

Network Economics: Applications and Challenges (sponsored by Sansan, Inc.), (virtual mini-conference), May 21st, 2022

Boneyard Econometrics Conference, with Carlos Lamarche, University of Illinois at Urbana-Champaign, Urbana (IL), April 17, 2015

Scientific Committee Member

Member of Scientific Committee for the Annual Conference of the International Association for Applied Econometrics, 2016-2023

Referee activity

Economics:

Journal of Political Economy, Quarterly Journal of Economics, Econometrica, Review of Economic Studies, Theoretical Economics, Journal of Business and Economics Statistics, Journal of Econometrics, Econometric Theory, The Review of Economics and Statistics, Journal of Applied Econometrics, Journal of Human Capital, International Economic Review, Quantitative Economics, Journal of Economic Behavior and Organization, Economics Letters, Journal of Economic Theory, European Economic Review, Southern Economic Journal, Regional Science and Urban Economics, Economic Inquiry, Review of Income and Wealth, Games

Statistics and other disciplines:

Journal of the Royal Statistical Society: Series A, Economics of Governance, Journal of Statistical Software, American Journal of Preventive Medicine, Marketing Letters, Statistical Methods and Applications, Nature Human Behavior

Other:

Ad Hoc reviewer, Palgrave Macmillan, Elsevier

National Science Foundation (NSF), Social Sciences and Humanities Research Council of Canada (SSHRC), Research Grants Council (RGC) of Hong Kong, European Reseach Council (ERC, Europe)

School Service

Member of the hiring committee, Post-doc in Applied Microeconomics (2021-2022)
Member, Covid-19 Re-entry committe 2021
Admission committee GMBA program (member), 2019
Member, Honor Council, 2018
Coordinator of the Research Seminar Series, 2016-2019
Admission Committee Global MBA (member), 2018-2019
Hiring Committe, Real Estate 2015-2016
Hiring Committee, Economics 2015-2016
Coordinator for Economics/Network of Carey Research Seminars, 2013-2016
Coordinator for the Quantitative Econ Working Group, 2014- 2017
Admission Committee (member), 2012-2014
Hiring Committee (member), Economics, Management, Marketing, Operations, Real Estate 2012-2014
Dean Research Scholars Fellowship committee 2012, 2013
GMBA Admitted Students Mock class, 2012, 2013, 2014

Student Mentoring and supervision
Phd Committees
Aranyak Acharyya, JHU Applied Mathematics and Statistics, 2024 (expected)
Cong Mu, JHU Applied Mathematics and Statistics, 2023 (placement: Microsoft)
Tao Wang, JHU Economics, 2023 (external member)
Sung Ah Bahk, JHU Economics, 2020 (external member)
Ryutah Kato, JHU Economics, 2020 (external member)
Shaiza Qayyum, JHU Economics, 2018 (external member)
Mikhail Smirnov, JHU Economics, 2016 (external member)

Matthew White, JHU Economics, 2014 (external member)
Brian Phelan, JHU Economics, 2013 (external member)
James Lake, JHU Economics, 2012 (external member)

Visiting Students
Nikolas Kuschnig, Vienna University for Economics and Business, February-April 2023
Amit Dekel, Paris School of Economics, September-December 2019