JUNSU PAN

Chapel Hill, NC   junsupan@live.unc.edu   (919) 903-3572   GitHub   Homepage

EDUCATION

Ph.D. Economics, University of North Carolina at Chapel Hill *2024*

M.A. Management, ESCP Business School, Paris *2018*

M.S. Finance, Tongji University, Shanghai *2018*

B.S. Mathematics & Economics, Southwestern University of Finance and Economics, Chengdu *2016*

RESEARCH INTERESTS

Econometrics, Financial Econometrics, Asset Pricing, Machine Learning

PUBLICATION

"Tensor Principal Component Analysis" with Andrii Babii and Eric Ghysels, *submitted*
Abstract: In this paper, we develop new methods for analyzing high-dimensional tensor datasets. A tensor factor model describes a high-dimensional dataset as a sum of a low-rank component and an idiosyncratic noise, generalizing traditional factor models for panel data. We propose an estimation algorithm, called tensor principal component analysis (TPCA), which generalizes the traditional PCA applicable to panel data. The algorithm involves unfolding the tensor into a sequence of matrices along different dimensions and applying PCA to the unfolded matrices. We provide theoretical results on the consistency and asymptotic distribution for the TPCA estimator of loadings and factors. We also introduce a novel test for the number of factors in a tensor factor model. The TPCA and the test feature good performance in Monte Carlo experiments and are applied to sorted portfolios.

WORKING PAPER

"Missing Financial Data: Filling the Tensor Blanks" with Andrii Babii and Eric Ghysels

"Dynamic Portfolio Selection with Regularization"

WORK IN PROGRESS

"Conditional Asset Pricing Factor Models with Firm Characteristics Tensor Data" with Andrii Babii and Eric Ghysels

"Identification and Estimation of Factor Models Through Coskewness Tensor" with Andrii Babii and Eric Ghysels

CONFERENCE PRESENTATIONS

NBER-NSF Time Series Conference* *September 2023*
Fifteenth Annual SoFiE Conference* *June 2023*
Triangle Econometrics Conference* *April 2023*
87$^{\text{th}}$ Annual Meeting of the Midwest Economics Association (MEA) *March 2023*
Neuro Tensors in Finance Mini-Conference at the University of Cambridge* *March 2023*
The Centre for Econometric Analysis at the Bayes Business School* *March 2023*
(* Presented by co-authors)

AWARDS, HONORS & FELLOWSHIPS

Graduate Student Transportation Grant, University of North Carolina at Chapel Hill	*Spring 2023*
Lurcy Fellowship, University of North Carolina at Chapel Hill	*Spring 2022*
National Postgraduate Mathematical Contest in Modeling (China), Meritorious Winner	*Fall 2016*
Mathematical Contest in Modeling (US), Meritorious Winner	*Spring 2015*
BOC Scholarship, Bank of China	*June 2016*
Academic Scholarship, Southwestern University of Finance and Economics	*4 semesters*

TEACHING EXPERIENCE

Instructor, Department of Economics, UNC Chapel Hill	
ECON 101: Introduction to Economics	*Summer 2020*

Teaching Assistant, Department of Economics, UNC Chapel Hill	
ECON 876: Introduction to Empirical Finance	*3 semesters*
ECON 771: Econometrics	*4 semesters*
ECON 400: Introduction to Data Science and Econometrics	*1 semester*
ECON 101: Introduction to Economics	*4 semesters*

PROFESSIONAL SERVICE

Referee for *Journal of Applied Econometrics*

WORK EXPERIENCE

Ph.D. Intern, NERA Economic Consulting, Washington, D.C.

SKILLS

Programming:	Python (TensorPCA package), Matlab (TPCA replication package), R, Stata, SAS
Languages:	English(fluent), Chinese(native)
Certificate:	CFA Level I

ADVISORS

Eric Ghysels *(chair)*
Department of Economics & Department of Finance
University of North Carolina
eghysels@unc.edu

Andrii Babii *(co-chair)*
Department of Economics
University of North Carolina
andrii@email.unc.edu

COMMITTEE MEMBERS

Peter Reinhard Hansen
Department of Economics
University of North Carolina
prhansen@email.unc.edu

Jonathan Hill
Department of Economics
University of North Carolina
jbhill@email.unc.edu

Valentin Verdier
Department of Economics
University of North Carolina
vverdier@email.unc.edu