

Vahan Nanumyan Dr. sc. ETH Zurich

vahan@nanumyan.com +41 78 715 72 64 Zurich, Switzerland
www.sg.ethz.ch/people/vnanumyan GitHub:// nanumyan LinkedIn:// nanumyan

Post-doctoral data science researcher at ETH Zurich. Experienced in teaching large classes and in directly supervising students. Skilled in random graphs, large-scale data analysis, statistics & machine learning, data visualisation.



updated on 17th January 2019

EDUCATION

ETH ZURICH

DOCTOR OF SCIENCES

May 2018 | Zurich, Switzerland

thesis: *Structure and Dynamics of Collaborative Knowledge Networks*

ETH ZURICH

MSc IN PHYSICS

May 2014 | Zurich, Switzerland

thesis: *Master Equations for Heterogeneous Evolution of Interdependent Networks*

graded 6.0 / 6.0

YEREVAN STATE UNIVERSITY

BSc IN PHYSICS

May 2010 | Yerevan, Armenia

thesis: *Light waves in 1D photonic crystals with arbitrarily changing dielectric and magnetic permittivities*

GPA: 4.0 / 4.0, honours

SKILLS

LANGUAGES

English Fluent
German Beginner
Armenian Native
Russian Native equal

ANALYTICAL

Graphs and Network Theory
Multivariate Statistics
Machine Learning
Social Network Analysis

PROGRAMMING

Over 5000 lines:

Python • R • \LaTeX

Over 1000 lines:

SQL • Neo4j Cypher

HTML • CSS • Mathematica

Familiar:

Javascript • Bash • C • PHP • Matlab

VISUALISATION

Data:

D3.js • Matplotlib • ggplot2 • Gephi

Illustration:

Adobe Photoshop & Illustrator •

Inkscape • GIMP

3D Graphics and CAD:

Blender • AutoCAD • 3ds Max

EXPERIENCE

ETH ZURICH – CHAIR OF SYSTEMS DESIGN | RESEARCHER & LECTURER

Jan 2013 - Present | Zurich, Switzerland

- As a PostDoc and previously a Doctoral candidate, developing new statistical methods for large and complex networked systems and applying these to real-world problems, e.g., for identifying fraudulent behaviour in socio-technical systems.
- Supervised 6 MSc student projects, teaching *Systems Dynamics & Complexity* (150 students), *Agent-Based Modelling* and *Complex Networks* together with Prof. Frank Schweitzer
- System administration for the group including maintenance of Linux servers, a small computing cluster and about 15 user laptops

DINAMICA TESTING CENTRE | FRONTEND WEB DEVELOPER

Feb 2011 – Sep 2011 | Yerevan, Armenia

- Designed and coded multiple small websites for WordPress and proprietary CMS

ANDAVA DIGITAL MARKETING AGENCY | SEO SPECIALIST

Jan 2010 – Jan 2011 | Yerevan, Armenia

- SEO for the websites of a Moscow-based travel company by means of code & content optimisation and growth of incoming links from bloggers

EUROSTAN-UYUT | TECHNICAL DRAWING & 3D VISUALISATION

Jan 2004 – Dec 2009 | Yerevan, Armenia

- Intermediary between company engineers and customers in construction
- Provided CAD technical drawings to engineers and 3D visualisation for the customers

AWARDS

2011–2014 Scholarship for MSc studies, Luys Foundation
2011 Best MSc student in IT presidential award, Armenia
2009 Best BSc student in IT presidential award, Armenia
2006–2010 Excellence scholarship, Yerevan State University

SELECTED PUBLICATIONS & WORKING PAPERS

- **Nanumyan, V.**, *Friend-or-Foe? Normalized Deviations in Discrete Asymmetric Distributions*, working paper
- **Nanumyan, V.**, Schweitzer, F., *Modelling Coupled Growth of Multilayer Networks*, working paper
- Casiraghi, G., **Nanumyan, V.**, *Generalized Hypergeometric Ensembles of Random Graphs: the Configuration Model as an Urn Problem*, arXiv:1810.06495, submitted to SIAM J. Appl. Math.
- Schweitzer, F., **Nanumyan, V.**, *A conceptual approach to model co-evolution of urban structures*, International Journal of Space Structures (2016): 31(1), pp43-51.
- Schweitzer, F., **Nanumyan, V.**, Tessone, C. J., Xia, X., *How Do OSS Projects Change In Number And Size? A Large-Scale Analysis To Test A Model Of Project Growth*, Advances in Complex Systems (2015): 1550008.
- **Nanumyan, V.**, Garas, A., Schweitzer, F., *The Network of Counterparty Risk: Analysing Correlations in OTC Derivatives*, PLoS ONE 10(9) (2015): e0136638.