



Nikita Rokotyan

DATA VISUALIZATION AND SCIENCE

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I solve creative problems with code and help people make decisions based on insights through dynamic data-driven experiences

BACKGROUND / AREAS OF INTEREST

TECH + Data Visualization

DESIGN UX/UI and Graphic Design

Full-stack Web Development

Creative Coding

Generative Design

High Performance Computing

Arduino

SCIENCE Ph. D. in Physics

Information Theory

Digital Signal Processing

Statistics

Inverse Problems

Remote Sensing

PRIMARY TECHNOLOGIES

Everyday working with: D3, React / Redux / MobX, Node / Express / Mongo, JavaScript ES7+, Webpack

Less frequently: three.js / two.js / p5.js / paper.js / WebGL, Cinder / openFrameworks / C++ / OpenGL, Processing

Analyzing data with: MATLAB / Octave, JavaScript, Python, Fortran

Graphic design: Adobe Illustrator / InDesign / Photoshop

EXPERIENCE*

2014 - now Founder of Interacta – Data Visualization and Science studio

2017 Invited Researcher at the University of Tokyo, Japan

2015 Creative resident at 72U, 72andSunny, Los Angeles

2011 - 2017 Staff scientist and scientific software engineer at the Laboratory of Climate and Environmental Physics, Ural Federal University, Ekaterinburg

2010 - 2014 Creative Technologist, self-employed

2010 - 2011 Research Scientist at the Laboratory of Global Ecology and Remote Sensing, Ural Federal University, Ekaterinburg

2008 - 2010 Graphic Designer, Ekaterinburg

* see APPENDIX for scientific experience

EDUCATION

- 2015 Ph. D. degree in Physics (Remote sensing and Spectroscopy),
Ural Federal University — Institute of Atmospheric Optics, Siberian Branch of
the Russian Academy of Science
- 2010 Specialist degree* in Radio Physics
- * The Specialist degree is a degree that you get after 5 years of higher education (
http://en.wikipedia.org/wiki/Specialist_degree)

AWARDS

- 2019 World Data Visualization Prize, Grand Prize Winner — the biggest award in
Data Visualization, organized by World Government Summit and Information
is Beautiful.
Video: <https://www.youtube.com/watch?v=wZ67rztOpu0>
Announcement: [https://informationisbeautiful.net/2019/winners-of-the-
world-data-visualization-prize/](https://informationisbeautiful.net/2019/winners-of-the-world-data-visualization-prize/)
- 2016 Second place in the “Atmospheric and Ocean Optics,” award among young
scientists
- 2014 Winner of the «Young Scientist» award by the Institute of Atmospheric and
Ocean Optics, Tomsk, Russia
- 2010 Winner of the «Create@Build» art + technology award organized by Intel and
The Creators Projects in Russia

TALKS (RELATED TO CREATIVE TECHNOLOGIES)

- 2017 «Data Visualization in Design, Science, Education, Journalism and other
fields», lecture at the Boris Yeltsin Presidential Center, Ekaterinburg
- 2014 «Coding and Design», talk at the Behance Portfolio Review #6, Ekaterinburg
- 2013 «Creative coding: programming new aesthetics», talk at the National Center of
Contemporary Art, Ekaterinburg
- 2012 «New tools in digital art», talk at the «Art. Science.Technology» program at Ural
Federal University, Ekaterinburg
- 2011 «History of generative art: from Demoscene to Processing», talk at the 2nd
«Theories and practices of media art» conference, Ekaterinburg

TEACHING EXPERIENCE

- 2017 «Data Visualization and Generative Design with D3», workshop at the Boris
Yeltsin Presidential Center, Ekaterinburg
- 2015 «Creative Coding and Data Visualization with Processing», workshop at

- 72andSunny, Los Angeles
- 2015 «Processing for Graphic Designers: Introduction to Generative Design and Creative Coding», 20 hours, Ekaterinburg
- 2014 «Cinder and Light» with Andrea Cuius, 2-days workshop at the Moscow International Festival «Circle of Light», Moscow
- 2010-2011 Lab Experiments for students on Molecular Physics and Optics, Ural Federal University, Ekaterinburg

REVIEWS

- 2018 Invited reviewer: D3.js Quick Start Guide by Matthew Huntington, book.
<https://www.packtpub.com/application-development/d3js-quick-start-guide>
- 2017 Invited reviewer: Expert Data Visualization by Jos Dirksen, book.
<https://www.packtpub.com/web-development/expert-data-visualization>

APPEARANCE IN MEDIA

- 2018 Video about my work for the Expo 2025 city campaign.
<https://www.youtube.com/watch?v=N8TTrzrJLKI>
- 2017 Guest on radio: Data Visualization in business applications,
Radio Silver Rain, Yekaterinburg
- 2017 Article: How scientists in the Urals monitor Climate Change,
Reactor magazine (in Russian). <https://reactor.space/corp/uralclimate/>
- 2016 Interviewed by Data Stories podcast: Data Vis Around the World in 2016,
<http://datastori.es/89-data-vis-around-the-world-in-2016/>
- 2016 Article: Cultivating Success at the Hayground School,
The Sag Harbor Express. <https://sagharborexpress.com/cultivating-success-hayground-school/>
- 2015 Article: Art residencies at the Ural Industrial Biennial of Contemporary Art,
Strelka magazine (in Russian). <https://strelka.com/ru/magazine/2015/11/13/biennale-gorod-pod-svetom-atomnogo-reactora>
- 2013 Article: Game Art: Nikita Rokotyan's "V2V, Making Of The Tree",
GameScenes magazine. <http://www.gamescenes.org/2013/02/game-art-nikita-rokotyan-v2v-making-of-the-tree-2012.html>
- 2012 Interview to the BigCityBuzz magazine about my scientific activities (in Russian). <http://bigcitybuzz.ru/2012/12/nikita-rokotyan/>

EXHIBITIONS

- 2016 Scream Chamber, an interactive installation that translate kids' scream into visual effects. It consists of 6 stations, which triggers pompoms, bubble machines, ribbons, pinwheels, lights, and wind respectively.
72U for STEAM Carnival, San Francisco.
<https://vimeo.com/149327976>
- 2015 Ars Virtua Artist-in-Residence, digital art residency.
Project presentation: ZERO1 Garage, San José, July 7 2015.
<https://rubaiyat.wordpress.com/2015/07/04/avair-presentation-tuesday-july-7-at-zero1-garage/>
- 2015 3rd Ural Industrial Biennial of Contemporary Art. Artist in residence.
- 2013 Kaleidoskopen 20000. Interactive sound installation created in cooperation with German sound artist Boris Hegenbart and students of the National Center of Contemporary Art (NCCA). Exhibited at the NCCA in Ekaterinburg, Russia.
<http://www.rokotyan.com/Kaleidoskopen20000-Sound-sculpture>
- 2012 2nd Ural Industrial Biennial of Contemporary Art. V2V (Valley to Valley). Artists in residence.
<https://vimeo.com/59085176>, <http://arsvirtua.com/v2v/index.html>
- 2012 Night of Museums 2012 @Ekaterinburg.
Curator of the «Generative and Interactive Art» program.
- 2011 Night of Museums 2011 @Ekaterinburg. «Sand Points» interactive installation.
<http://www.rokotyan.com/Sand-Point-interactive>

APPENDIX: SCIENTIFIC EXPERIENCE

22 PUBLICATIONS WITH 47 CITATIONS (ACCORDING TO GOOGLE SCHOLAR)

SELECTED PUBLICATIONS

- 2017 **Nikita Rokotyan**, R. Imasu, K. G. Gribanov, V. I. Zakharov. Bottlenecks in the remote sensing of the $^{13}\text{CO}_2/^{12}\text{CO}_2$ isotopic ratio from GOSAT measurements, Proc. SPIE 10466, 23rd International Symposium on Atmospheric and Ocean Optics: Atmospheric Physics, 104661Q (30 November 2017); doi: 10.1117/12.2287960
- 2016 T. Chesnokova, A. Chentsov, **N. Rokotyan**, V. Zakharov. Impact of difference in absorption line parameters in spectroscopic databases on CO_2 and CH_4 atmospheric content retrievals, Journal of Molecular Spectroscopy 327, DOI: 10.1016/j.jms.2016.07.001
- 2015 **Rokotyan, N.**, Imasu, R., Zakharov, V., Gribanov, K., and Khamatnurova, M. The amplitude of the CO_2 seasonal cycle in the atmosphere of the Ural region retrieved from ground-based and satellite measurements in near infrared, Atmospheric and Oceanic Optics, 2015, V. 28, N. 1, PP. 49–55.
- 2015 T. Chesnokova, A. Chentsov, **N. Rokotyan**, V. Zakharov. Retrieval of content of greenhouse gases from atmospheric spectra of solar radiation with the use of different spectroscopic data on absorption lines, Atmospheric and Oceanic Optics 28(5):469-475, DOI: 10.1134/S1024856015050036
- 2014 **Rokotyan, N.**, Zakharov, V. I., Gribanov, K. G., Schneider, M., Bréon, F.-M., Jouzel, J., Imasu, R., Werner, M., Butzin, M., Petri, C., Warneke, T., Notholt, J. A posteriori calculation of $\delta^{18}\text{O}$ and δ^{D} in atmospheric water vapour from ground-based near-infrared FTIR retrievals of H_2^{16}O , H_2^{18}O , and HD^{16}O , Atmos. Meas. Tech. 2014. V. 7, N 8. PP. 2567-2580.
- 2014 Gribanov, K., Jouzel, J., Bastrikov, V., Bonne, J.-L., Breon, F.-M., Butzin, M., Cattani, O., Masson-Delmotte, V., **Rokotyan, N.**, Werner, M., Zakharov, V. Developing a western Siberia reference site for tropospheric water vapour isotopologue observations obtained by different techniques (in situ and remote sensing), Atmos. Chem. Phys. 2014. V. 14, N 12. PP. 5943-5957.
- 2014 Skorik, G., Vasin, V. V., Gribanov, K., Jouzel, J., Zakharov, V., **Rokotyan, N.** Retrieval of vertical profiles of water vapor isotopes in the atmosphere based on infrared transmittance spectra of sunlight, Doklady Earth Sciences, 2014, V. 454, N. 2, PP. 208-212.
- 2013 Gribanov, K., **Rokotyan, N.** Remote sensing and direct measurements of stable atmospheric isotopes at Ural Atmospheric Fourier Station. 17 June 2013, SPIE Newsroom. DOI: 10.1117/2.1201306.004940. Available at <http://spie.org/x94824.xml>.
- 2013 **Rokotyan, N.**, Zakharov, V., Gribanov, K., Jouzel, J., Warneke, T., Notholt, J. The possibility of atmospheric remote sensing of carbon gases isotopologues using ground-based high-resolution FTIRs, Atmospheric and Oceanic Optics, 2013, V. 26, N.1, PP. 46-51.
- 2012 **Rokotyan, N.**, Gribanov, K., Zakharov, V. The effect of temperature-independent

absorption and its use in remote sensing of atmospheric carbon gases, *Atmospheric and Oceanic Optics*. 2011. V. 24. N. 6. PP. 510–515.

- 2011 Gribanov, K., Zakharov, V., Beresnev, S., Rokotyan, N., Poddubny, V., Imasu, R., Chistyakov, P., Skorik, G., Vasin, V. The sounding of HDO/H₂O in Ural's atmosphere using ground-based measurements of IR-solar radiation with high spectral resolution, *Atmospheric and Oceanic Optics*, 2011. V. 24. N 2. PP. 124–127.

CONFERENCE TALKS (ENGLISH)

- 2014 N. V. Rokotyan, V. I. Zakharov, K. G. Gribanov, J. Jouzel, M. Werner, M. Butzin, Remote sensing of water isotopologues at the Ural Atmospheric Station. «Science of the future», Saint-Petersburg, Russia, 2014.
- 2014 N. Rokotyan, R. Imasu, M. Khamaturova, V. Zakharov, K. Gribanov, C. Petri, Ground-based remote sensing of XCO₂ and XCH₄ at the Ural Atmospheric Station. Comparison with the GOSAT L2 retrievals. NDACC IRWG/TCCON Annual Meeting, Bad Sulza, Germany, 2014.
- 2013 N. Rokotyan, K. Gribanov, V. Bastrikov, V. Zakharov. Series of measurements from new possible validation site at Kourovka. 9th International Workshop on Greenhouse Gas Measurements from Space, Yokohama, Japan, 2013.
- 2013 N. Rokotyan, K. Gribanov, V. Zakharov. First retrieval attempt of del18O in atmospheric water vapour from ground-based FTIR, WSIBISO project meeting, Gif-sur-Yvette, France, 2013.
- 2013 N. Rokotyan, V. Zakharov, K. Gribanov, F.-M. Bréon, J. Jouzel, R. Imasu, C. Petri, T. Warneke, J. Notholt Regarding possibility of the remote sensing of carbon greenhouse gases and water vapour isotopologues in the atmosphere using high resolution ground-based FTIR measurements. European Geosciences Union General Assembly, Vienna, Austria, 7, 2013.
- 2012 N. Rokotyan, V. Zakharov, K. Gribanov, J. Jouzel, T. Warneke, and J. Notholt, Methods of remote sensing of ¹³CH₄/¹²CH₄, ¹³CO₂/¹²CO₂, CH₃D/¹²CH₄ and H₂¹⁸O/H₂¹⁶O concentration ratio in the atmosphere using ground-based FTIR, NDACC IRWG/TCCON Annual Meeting, Wengen, Switzerland, 2014.
- 2012 N.V. Rokotyan, V.I. Zakharov, K.G. Gribanov, R. Imasu, J. Jouzel, T. Warneke, J. Notholt. Methods of remote sensing of ¹³CH₄/¹²CH₄, ¹³CO₂/¹²CO₂, CH₃D/¹²CH₄ and H₂¹⁸O/H₂¹⁶O concentration ratio in atmosphere using ground-based FTIR, XVII Symposium on High Resolution Molecular Spectroscopy «HighRus-2012», Saint-Petersburg, Russia, 2012.
- 2012 N. Rokotyan, V. Zakharov, K. Gribanov, J. Jouzel, T. Warneke, and J. Notholt. Methods of retrieval of ¹³CH₄/¹²CH₄ and ¹³CO₂/¹²CO₂ ratio in atmosphere using ground-based FTIR spectral measurements. European Geosciences Union General Assembly, Vienna, Austria, 2012