



# Nikita Rokotyan

DATA VISUALIZATION AND SCIENCE  
nikita@rokotyan.com  
+7 912 273 28 63

Website: [rokotyan.com](http://rokotyan.com)  
Twitter: [@ernaem](https://twitter.com/ernaem)  
Instagram: [rokotyan](https://www.instagram.com/rokotyan)

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

## BACKGROUND

**TECH + DESIGN** Data Visualization  
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;

**Analysing data with:** MATLAB / Octave, JavaScript, Python, Fortran;

**Graphic design:** Adobe Illustrator / InDesign / Photoshop;

## EXPERIENCE\*

2014 - now Data Visualization engineer (self-employed)

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

2017 Visiting Researcher at the University of Tokyo, Japan

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

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 Print Designer, Ekaterinburg

\* see APPENDIX II for Science Experience

## EDUCATION

2015 Ph. D. degree in Physics ( Remote sensing and Spectroscopy )

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](http://en.wikipedia.org/wiki/Specialist_degree) )

## 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

- Ural Federal University, Ekaterinburg, Russia;  
Institute of Atmospheric and Ocean Optics, Tomsk, Russia.
- 2012 Oct - Nov Traineeship on retrieving atmospheric composition from solar radiation using space-based and ground-based spectral measurements.  
Laboratory of Climate and Environmental Sciences, Pierre Simon Laplace Institute, Paris, France
- 2011 Nov Traineeship on Fourier-transform infrared spectrometry.  
Institute of Environmental Physics, Bremen University, Bremen, Germany
- 2005-2010 Specialist degree\* in the field of radiophysics and physical electronics.  
Subject: Corona discharge modeling  
Ural Federal University, Ekaterinburg, Russia
- \* The Specialist degree is a degree that you get after 5 years of higher education in Russia ( [http://en.wikipedia.org/wiki/Specialist\\_degree](http://en.wikipedia.org/wiki/Specialist_degree) )

## APPENDIX II: SCIENTIFIC EXPERIENCE

### PEER-REVIEWED 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
- 2015 **Rokotyan, N.**, Imasu, R., Zakharov, V., Gribanov, K., and Khamaturova, M. The amplitude of the  $\text{CO}_2$  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.
- 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  $\delta\text{D}$  in atmospheric water vapour from ground-based near-infrared FTIR retrievals of  $\text{H}_2^{16}\text{O}$ ,  $\text{H}_2^{18}\text{O}$ , and  $\text{HD}^{16}\text{O}$ , 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., Griбанov, 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 Griбанov, 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., Griбанov, 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.**, Griбанov, 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 Griбанov, K., Zakharov, V., Beresnev, S., Rokotyan, N., Poddubny, V., Imasu, R., Chistyakov, P., Skorik, G., Vasin, V. The sounding of HDO/H<sub>2</sub>O 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 (FIRST AUTHOR, ENGLISH)

- 2014 N. V. Rokotyan, V. I. Zakharov, K. G. Griбанov, 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. Griбанov, C. Petri, Ground-based remote sensing of XCO<sub>2</sub> and XCH<sub>4</sub> at the Ural Atmospheric Station. Comparison with the GOSAT L2 retrievals. NDACC IRWG/TCCON Annual Meeting, Bad Sulza, Germany, 2014.
- 2013 N. Rokotyan, K. Griбанov, 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.

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- 2013 N. Rokotyan, K. Gribanov, V. Zakharov. First retrieval attempt of  $\delta^{18}O$  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. Jouze, 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  $^{13}CH_4/^{12}CH_4$ ,  $^{13}CO_2/^{12}CO_2$ ,  $CH_3D/^{12}CH_4$  and  $H_2^{18}O/H_2^{16}O$  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  $^{13}CH_4/^{12}CH_4$ ,  $^{13}CO_2/^{12}CO_2$ ,  $CH_3D/^{12}CH_4$  and  $H_2^{18}O/H_2^{16}O$  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  $^{13}CH_4/^{12}CH_4$  and  $^{13}CO_2/^{12}CO_2$  ratio in atmosphere using ground-based FTIR spectral measurements. European Geosciences Union General Assembly, Vienna, Austria, 2012