

# Niket H. Thakkar

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## Summary

Experience in theoretical physics, software development, optics, statistical inference, data analysis, optimization, and applied mathematics. **Winner of the National Science Foundation Graduate Research Fellowship.** Self-motivated, creative, hard-working, and collaborative researcher with a broad quantitative background and a **Doctoral degree in Applied Mathematics from the University of Washington.**

## Skills include:

- Coding in Python, Fortran, Matlab, and SQL.
- Mathematical concepts such as dynamical systems, partial differential equations, regression, numerical analysis, statistical inference, and uncertainty quantification.
- Writing in LaTeX and Microsoft Word. Scientific graphic design in Inkscape.

## Objective

Seeking a challenging and rewarding job which utilizes my research skills and mathematical expertise.

## Experience

### 2011 – 2016 Research Associate and NSF Graduate Fellow (U. Washington)

Conducted research on nanophotonics and plasmonics with Prof. David Masiello. Created mathematical models using Hamiltonian dynamical systems that facilitated the design of novel experimental techniques and nanoscale devices and continue to be used by researchers in the field today. Used numerical simulation to bench mark and parameterize analytic models. Work published in journals such as *Nature Photonics*, *ACS Nano*, and *ACS Photonics*, and received awards such as the Boeing Research Award.

### 2010 – 2011 Research Associate, FACTA 319 Study (U. Arizona)

Conducted research and data-collection to assess the validity of credit reports with Prof. Mike Staten under the Fair and Accurate Credit Transactions Act (FACTA). Represented subjects in dispute claims against credit reporting agencies, helping them to gain financial stability. Conducted economic and statistical analysis of the data.

### 2009 – 2010 Researcher, Renewable Energy (U. Arizona)

Conducted research on solar energy devices with Prof. Alex Cronin in collaboration with Tucson Electric Power (TEP). Created a first principles mathematical model of the TEP solar yard which accounted for the nonlinear loss of power due to shadows from nearby objects. This model was used to restructure the solar yard and increase output by 22% in the month of December (3.8% annually). Received a Nasa Space Grant to fund this work, and published in *PVSC IEEE* conference proceedings.

### Selected Fellowships, Awards, and Honors

2016	Research featured in C&E News and Nature News and Views
2016	Selected to speak at the Gordon Conference Seminar
2015	Boeing Research Award for Excellence in Applied Mathematics
2013	NSF Graduate Research Fellowship Winner
2008	NASA Space Grant Recipient

### Education

2017	PhD	Applied Mathematics	University of Washington
2012	MS	Applied Mathematics	University of Washington
2011	BS	Physics (with Honors)	University of Arizona
2011	BS	Mathematics	University of Arizona
2011	BA	Economics	University of Arizona

Undergraduate Grade Point Average: 3.808

Graduate Grade Point Average: 3.79

Ph.D. Advisor: Professor David Masiello

### Selected Publications (Citations: >100)

1. **Thakkar, N.**, Montoni, N.P., Cherqui, C. and Masiello, D.J., 2017. *Quantum Plasmon Resonances in Active Environments*. Under review at Nature Photonics.
2. Heylman, K.D., **Thakkar, N.**, Horak, E.H., Quillin, S.C., Cherqui, C., Knapper, K.A., Masiello, D.J. and Goldsmith, R.H., 2016. *Optical microresonators as single-particle absorption spectrometers*. Nature Photonics, 10(12), pp.788-795.
3. Schimpf, A.M., **Thakkar, N.**, Gunthardt, C.E., Masiello, D.J. and Gamelin, D.R., 2013. *Charge-tunable quantum plasmons in colloidal semiconductor nanocrystals*. ACS nano, 8(1), pp.1065-1072.
4. **Thakkar, N.**, Cherqui, C. and Masiello, D.J., 2015. *Quantum Beats from Entangled Localized Surface Plasmons*. ACS Photonics, 2(1), pp.157-164.
5. **Thakkar, N.**, Cormode, D., Lonij, V., Pulver, S. and Cronin, A.D., 2010, June. *A simple non-linear model for the effect of partial shade on PV systems*. In Photovoltaic Specialists Conference (PVSC), 2010 35th IEEE (pp. 002321-002326). IEEE.

### Selected Outreach Activities

- **Conference Talks:** Gordon Conference (2016), ACS Denver (2015), NASA Space Grant Symposium (2008)
- **Reviewer for:** Physical Review B, Journal of Applied Physics
- **Freedom Education Project Puget Sound, volunteer teacher:** I volunteer as a math teacher and am part of a nonprofit, accredited college program for prisoners at the Washington Corrections Center for Women.
- **UW Math Fair coordinator and volunteer:** As a UW math fair volunteer, I create and engage in math based activities for elementary school students in Seattle. I have participated in this event regularly and organized and managed it.
- **UW Dream Project Mentor:** The UW Dream Project offers underrepresented and low income students around Seattle help with their college applications. As a mentor, I help high school seniors with any part of their applications, including personal statements and short response essays.