NITHIN JACOB NEDUMTHAKADY

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY, College of Engineering **Atlanta, GA**
Doctor of Philosophy (PhD), Materials Science and Engineering *December 2021*

- *Research Focus:* 3D and Embedded Heterogeneous Integration Technologies
- *Secondary Field of Study:* Electrical and Computer Engineering
- *Advisors:* Prof. Rao Tummala, Prof. Vanessa Smet

GEORGIA INSTITUTE OF TECHNOLOGY, Scheller College of Business **Atlanta, GA**
Master of Business Administration (MBA) *December 2021*

UNIVERSITY AT ALBANY, SUNY, Colleges of Nanoscale Science and Engineering **Albany, NY**
Bachelor of Science (BSc), Nanoscale Engineering / Minors in Mathematics and Business *May 2016*

- *Concentration:* Nanobioengineering

EXPERIENCE

GEORGIA INSTITUTE OF TECHNOLOGY **Atlanta, GA**
Graduate Research Assistant / 3D Systems Packaging Research Center *August 2017-Present*

- Modeling, design, and fabrication of reliable, advanced thermal interface materials and heat spreaders
- Design, development, and fabrication of novel 2.5D, 3D, and Glass Panel Embedded (GPE) architectures
- Worked with 50+ international companies within consortium, including Intel, Honeywell, Corning, TSMC, etc.
- Collaborated with 4 research engineers and 40+ graduate students to write grant proposals to secure funding

INTEL CORPORATION **Chandler, AZ**
Graduate Intern – Technical / Substrate Packaging Technology Development (SPTD) *May 2019-August 2019*

- Introduced new electrochemical analysis capabilities to formulate more economically efficient chemistries in-house
- Assessed and analyzed risk of existing and new electroplating baths to enable learning, mitigate risk, and ensure yield
- Partnered with a group of other interns to organize networking and social events throughout the internship program

GLOBALFOUNDRIES **Malta, NY**
Process Engineer / Advanced Technology Development - Etch *June 2016-August 2017*

- Created new semiconductor manufacturing processes for 7, 10, and 14 nanometer technology nodes
- Transferred and optimized processes from older technology nodes for compatibility with newer technologies
- Trained and led team of 10+ engineers on best practices for fault detection and control of semiconductor equipment

Co-Op / Advanced Module Engineering – Thin Films *May 2014-June 2016*

- Implemented leading-edge statistical process control software on 30+ tools to improve efficiency and control
- Analyzed extensive data and engineered statistical limits to ensure tools operated at reliable conditions to save >$100k

UNIVERSITY AT ALBANY, SUNY: Colleges of Nanoscale Science and Engineering **Albany, NY**
Undergraduate Research Assistant / Tenenbaum Lab *June 2013-May 2016*

- Devised and engineered innovative biotechnologies using semiconductor fabrication tools and methods
- Led teams to secure >$50k in funding by delivering business pitches for the New York State Business Plan Competition

ADDITIONAL INFORMATION

Software: Python, ANSYS, MATLAB, E3, Extensio. SHINY, AutoCAD, JMP, SOLIDWORKS, C++, Adobe Suite
Technical: Semiconductor fabrication processes, Raman spectroscopy, atomic force microscopy, laser fabrication processes (UV, CO2, femtosecond), electrochemical analysis, composite manufacturing
Skills: Project management, product development, strategic analysis, data modeling, grant writing, public speaking
Languages: Malayalam (native proficiency), English (native proficiency), Spanish (working proficiency)
Volunteer: Undergraduate research mentor, graduate recruiter, Georgia Science and Engineering Fair Judge
Sel. Publ. Tummala, Rao, et al. "Heterogeneous and homogeneous package integration technologies at device and system levels." *2018 Pan Pacific Microelectronics Symposium (Pan Pacific)*. IEEE, 2018. (1 of 9)
Patents: GTRC7842PRV2: V.Sundaraman, N.Nedumthakady, et al. "3D Embedded Package for Heterogeneous Integration", 2018. (Status: Provisional)

PUBLICATION LIST

1. Rehman, M., Ravichandran, S., Watanabe, A., Ali, M., Lin, T., **Nedumthakady, N.**, Swaminathan, M. "Glass Interposer Technology for 5G and Beyond" *GoMacTech* (2020). *Pending*.

2. Tummala, R., DeProspo, B., Dwarakanath, S. Ravichandran, S., Nimbalkar, P., **Nedumthakady, N.**, Swaminathan, M. "Glass Panel Packaging, as the Most Leading-Edge Packaging: Technologies and Applications." *2020 Pan Pacific Microelectronics Symposium (Pan Pacific)*. IEEE, 2020.

3. Iyer, S., Farooq, M. Tummala, R., Gupte, O., DeProspo, B., **Nedumthakady, N.**, Ravichandran, S. "Fundamentals of 3D Packaging with and without TSV". *Fundamentals of Device and Systems Packaging: Technologies and Applications, Second Edition*. McGraw Hill. 2019.

4. Raj, P.M., **Nedumthakady, N.**, Tummala, R. "Packaging of bioimplantable electronics." *Chip Scale Review*, April 2019.

5. **Nedumthakady, N.**, DeProspo, B., Sharma, H., Manepalli, R., Kandanur, S., Panikkanvalappil, S., ... & Tummala, R. (2019, May). In-Situ Investigation of Organic Additive Interactions in Copper Electroplating Solutions with Surface Enhanced Raman Spectroscopy (SERS). In *2019 IEEE 69th Electronic Components and Technology Conference (ECTC)* (pp. 1588-1594). IEEE.

6. **Nedumthakady, N.**, DeProspo, B., Raj, P.M., Sundaram, V. S., Tummala, R., Byers, K., Garrison, S., Gibson, C., Elsbury, M. (2018, May). Integrated Copper Heat Spreaders in Glass Panel Embedded Packages with Near-Zero Thermal Interface Resistance. In *2018 IEEE 68th Electronic Components and Technology Conference (ECTC)* (pp. 2013-2018). IEEE.

7. Tummala, R., **Nedumthakady, N.**, Ravichandran, S., DeProspo, B., & Sundaram, V. (2018, February). Heterogeneous and homogeneous package integration technologies at device and system levels." In *Pan Pacific Microelectronics Symposium (Pan Pacific), 2018*, pp. 1-5. IEEE, 2018

8. Gottipati, A., Keith, J.H., **Nedumthakady, N.**, Begley, T., & Tenenbuam, S. A. (2014, April). Diameter dependent degradation of single walled carbon nanotubes. In *Bioengineering Conference (NEBEC), 2014 40th Annual Northeast, pp.1-2. IEEE, 2014*

PATENT LIST

1. GTRC7842PRV2: V. Sundaraman, N. Nedumthakady, S. Ravichandran, R. R. Tummala. "3D Embedded Package for Heterogeneous Integration", 2018. (Status: Provisional)