

Jingjie Yeo

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EDUCATION

Nanyang Technological University, Singapore **Aug 2010 – Nov 2014**

- Ph.D. in Computational Mechanics
- Thesis on the topic: Modeling and Simulation of the Structural Evolution and Thermal Properties of Ultralight Aerogel and 2D Materials

Nanyang Technological University, Singapore **Aug 2006 – Aug 2010**

- Bachelor of Engineering (2nd Upper Hons)
- Major in Aerospace Engineering
- Minor in Business

RESEARCH EXPERIENCE

Massachusetts Institute of Technology **Mar 2016 – Present**
Postdoctoral Associate

- Primary research on achieving graphene origami through biofunctionalization
- Complex fluid flows, such as human sebum and biocrude oil
- Aggregation mechanics of silk-elastin-like proteins and collagen
- Polymers in additive manufacturing
- Graphene as biomaterials and desalination membranes
- Supervised by Department Head of Civil and Environmental Engineering Professor Markus Buehler

Institute of High Performance Computing **Apr 2014 – Mar 2016**
Scientist I

- Main research on computational models for human keratins and lipids in collaboration with Procter & Gamble
- Development and application of fully atomistic and coarse-grained molecular dynamics models of keratins and lipid bilayers
- Investigated biomechanics of human stratum corneum under the influence of therapeutic and pharmaceutical agents as well as influence of diseases affecting the skin
- Other research topics of polymers in additive manufacturing, graphene as biomaterials and desalination membranes

Brown University*Visiting Research Scholar***Feb 2013 – Oct 2013**

- Research work on “Molecular dynamics modelling of novel single layered materials”
- Supervised by Walter H. Annenberg University Professor Gao Huajian

Singapore Institute of Manufacturing Technology*Internship and Final Year Project***Jan 2009 – Jun 2009**

- Research work on detecting heat damage in Carbon-Fibre Reinforced Plastics in aerospace applications
- Design, manufacture and lab testing of working prototype
- Presented prototype to Boeing and Rolls Royce representatives.

AWARDS AND GRANTS

Institute of High Performance Computing (IHPC) Best Industry Project Award

May 2016

Agency for Science, Technology and Research (A*STAR) Post-doctoral Fellowship, Singapore

Mar 2016 – Mar 2018

Collaborator in MOE Academic Research Funding (AcRF) Tier 1, Singapore - Total research grant of SGD\$80,000

Feb 2016 – Feb 2017

International Symposium on Frontiers in Applied Mechanics, Singapore – Best Poster

Dec 2014

Collaborator in MOE Academic Research Funding (AcRF) Tier 1, Singapore - Total research grant of SGD\$99,500

Nov 2014 – Feb 2016

International Graduate Summer School, Beihang University, Beijing, China – Excellent Student Prize

Jul 2013

Collaborator in IDA Call 5 and 6 for Cloud Computing Proposals - R&D Track, Singapore - Total research grant of SGD\$50,000

Sep 2012 – Sep 2013

Tenth Young Researchers' Conference, Belgrade, Serbia - Best Presentation

Dec 2011

Agency for Science, Technology and Research (A*STAR) Graduate Scholarship, Singapore

Aug 2010 – Aug 2014**Book Chapters**

Ng TY, Joshi SC, **Yeo JJ**, Liu ZS. Effects of Nanoporosity on the Mechanical Properties and Applications of Aerogels in Composite Structures. *Advances in Nanocomposites*. 2016; 4: p. 97–126.

JOURNAL PUBLICATIONS

Yeo JJ, Cheng Y, Han YT, Zhang Y, Guan G, Zhang YW. Adsorption and Conformational Evolution of Alpha-Helical BSA Segments on Graphene: A Molecular Dynamics Study. *Int J Appl Mech*. 2016; 8(2): p. 1650021.

Cheng Y, Koh LD, Li D, Ji B, Zhang Y, **Yeo JJ**, Guan G, Han MY, Zhang YW. Peptide–Graphene Interactions Enhance the Mechanical Properties of Silk Fibroin. *ACS Appl Mater Interfaces*. 2015; 7(39): p. 21787–21796.

Shakouri A, **Yeo JJ**, Ng TY, Liu ZS, Taylor HK. Superlubricity-activated thinning of graphite flakes compressed by hydrogen terminated crystalline silicon substrates for exfoliating single layer graphene: a molecular dynamics study. *Carbon*. 2014; 80(0): p. 68-74.

Yeo JJ, Ng TY, Liu ZS. Molecular dynamics analysis of the thermal conductivity of graphene and silicene monolayers of different lengths. *J Comput Theor Nanos*. 2014; 11(8): p. 1790-1796

Lei J, Liu Z, **Yeo J**, Ng TY. Determination of the Young's Modulus of Silica Aerogel - An Analytical-Numerical Approach, *Soft Matter*. 2013; 9(47): p. 11367-11373.

Yeo JJ, Ng TY, ZS Liu. Enhanced thermal characterization of silica aerogels through molecular dynamics simulation. *Modelling Simul Mater Sci Eng*. 2013; 21(7): p. 075004.

Ng TY, **Yeo J**, Liu Z. Molecular dynamics simulation of the thermal conductivity of shorts strips of graphene and silicene: a comparative study. *Int J Mech Mater Des*. 2013; 9(2): p. 105-114.

Yeo JJ, Liu ZS, Ng TY. Comparing the effects of dispersed Stone–Thrower–Wales defects and double vacancies on the thermal conductivity of graphene nanoribbons. *Nanotechnology*. 2012; 23(38): p. 385702.

Ng TY, **Yeo JJ**, Liu ZS. A molecular dynamics study of the thermal conductivity of graphene nanoribbons containing dispersed Stone–Thrower–Wales defects. *Carbon*. 2012; 50(13): p. 4887-4893.

Ng TY, **Yeo JJ**, Liu ZS. A molecular dynamics study of the thermal conductivity of nanoporous silica aerogel, obtained through negative pressure rupturing. *J Non-Cryst Solids*. 2012; 358(11): p. 1350-1355.

CONFERENCE PRESENTATIONS

Yeo JJ, Cheng Y, Zhang YW. Molecular Dynamics Simulations on the Conformation Changes of Keratin Coiled-coil structure due to Point Mutations. Oral Presentation delivered at 6th International Conference on Mechanics of Biomaterials and Tissues (ICMoBT), Hawaii, USA, December 2015.

Yeo JJ, Han YT, Cheng Y. Conformational change of an α -helix segment of bovine serum albumin adsorbed on graphene. Oral Presentation delivered at The 6th International Conference on Computational Methods (ICCM), Auckland, New Zealand, July 2015.

Yeo JJ, Cheng Y, Li W, Zhang YW. Molecular Dynamics Modelling Of EGCG Clusters On Ceramide Bilayers. Oral Presentation delivered at 12th International Conference of Computational Methods in Sciences and Engineering (ICCMSE), Athens, Greece, March 2015.

Yeo JJ, Cheng Y, Zhang YW. Molecular Dynamics Modelling of the Interactions Between Green Tea Extracts and Skin Lipid Bilayer. Poster Presentation delivered at International Symposium on Frontiers in Applied Mechanics (ISFAM), Singapore, December 2014.

Yeo JJ, Shakouri S, Ng TY, ZS Liu, Taylor HK. Exfoliation of graphene through activation of superlubricity. Oral Presentation delivered at 5th Asia Pacific Congress On Computational Mechanics & 4th International Symposium On Computational Mechanics (APCOM & ISCM), Singapore, December, 2013.

Yeo JJ, Ng TY, ZS Liu. Molecular dynamics modelling of silica aerogel. Oral Presentation delivered at International Graduate Summer School in Aeronautics and Astronautics, Beijing, China, July, 2013.

Yeo JJ, Ng TY, ZS Liu. Comparing thermal conductivities of graphene and silicene through molecular dynamics. Oral Presentation delivered at 7th International Conference on Materials for Advanced Technologies (ICMAT), Singapore, June, 2013.

Yeo JJ, Ng TY, ZS Liu. Comparisons of the effects of different classes of defects on the thermal conductivity of graphene - A molecular dynamics study. Oral Presentation delivered at 4th International Conference on Computational Methods (ICCM), Gold Coast, Australia, November, 2012.

Yeo JJ, Ng TY, ZS Liu. Geometrical and thermal characterization of silica aerogel using classical molecular dynamics. Oral Presentation delivered at European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS), Vienna, Austria, September, 2012.

Yeo JJ, Ng TY, ZS Liu. Thermal conductivity of defective graphene nanoribbons – A molecular dynamics study. Oral Presentation delivered at International Congress on Theoretical and Applied Mechanics (ICTAM), Beijing, China, August, 2012.

Yeo JJ, Ng TY, ZS Liu. Numerical characterization of silica aerogel using Molecular Dynamics and the re-parameterized Tersoff potential. Poster Presentation delivered at 5th MRS-S Conference on Advanced Materials, Singapore, March, 2012.

Yeo JJ, Ng TY, ZS Liu. Investigating nanoporous silica aerogel obtained through negative pressure rupturing - A molecular dynamics study. Oral Presentation delivered at Tenth Young Researchers' Conference, Belgrade, Serbia, December, 2011.

SCI CITATIONS

Sum of the Times Cited	104
Average Citations per Article	11.56
h-index	5

PROGRAMMING LANGUAGES AND SOFTWARES

- Python, Tcl, MATLAB, Octave, Bash
- LAMMPS, GROMACS, NAMD, ESPResSo
- Chimera, VMD, PyMOL

PROFESSIONAL AFFILIATIONS

Member, Materials Research Society – Singapore

Member, Association for Computational Mechanics (Singapore)

REVIEWER FOR ACADEMIC JOURNALS

International Journal of Applied Mechanics

International Journal of Computational Materials Science and Engineering