

# Cao Thang Nguyen

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## EDUCATION

- Ph.D. Mechanical Engineering,  
Ulsan National Institute of Science & Technology (UNIST), Korea, 2022
- M.S. Mechanical Engineering,  
Univertisty of Ulsan, Korea, 2016
- B.S. Mechanical Engineering,  
Univertisty of Technical & Education, Vietnam, 2010

## RESEARCH AREAS

Computational nanomechanics.

Atomistic simulations of nanomaterials.

Transportation planning: street network design, access, equity, and urban form

Housing: emerging technology platforms' impacts on markets, residential mobility, and segregation

## TECHNICAL SKILLS

Experience with atomistic simulations, molecular dynamics/statics simulations.

Experience with atomistic simulations, molecular dynamics/statics simulations.

Experience with compiling and running simulation packages on high-performance computing clusters.  
and developing post-processing codes

## PUBLICATIONS

Articles in my [Google Scholar profile](#).

Articles in my [ORCID profile](#).

Articles in my [personal web](#).

### Journal Articles

- 2022 Viet Hung Ho\*, Cao Thang Nguyen\*, Hoang D. Nguyen\*, Hyun Suk Oh, Myoungsu Shin, Sung Youb Kim. "Hydrogenated Graphene with Tunable Poisson's Ratio Using Machine Learning: Implication for Wearable Devices and Strain Sensors." *ACS Applied Nano Materials*, 2022, 10617–10627. [doi:10.1021/acsanm.2c01950](https://doi.org/10.1021/acsanm.2c01950). (\* equal contribution)

- 2022 Viet Hung Ho\*, Duc Tam Ho, Cao Thang Nguyen, Sung Youb Kim. “Negative out-of-plane Poisson’s ratio of bilayer graphene.” *Nanotechnology*, 33 255705. [doi:10.1088/1361-6528/ac5dao](https://doi.org/10.1088/1361-6528/ac5dao).
- 2019 Cao Thang Nguyen\*, Duc Tam Ho\*, Seung Tae Choi, Doo-Man Chun, Sung Youb Kim. “Pattern transformation induced by elastic instability of metallic porous structures.” *Computational Materials Science*, (2019) 17–24. [doi:10.1016/j.commatsci.2018.10.023](https://doi.org/10.1016/j.commatsci.2018.10.023). (\* equal contribution)
- 2019 Duc Tam Ho\*, Cao Thang Nguyen\*, Soon-Yong Kwon, Sung Youb Kim. “Auxeticity in Metals and Periodic Metallic Porous Structures Induced by Elastic Instabilities (Phys. Status Solidi B 1/2019).” *physica status solidi (b)*. [doi:10.1002/pssb.201970010](https://doi.org/10.1002/pssb.201970010). (\* equal contribution)
- 2019 Duc Tam Ho\*, Cao Thang Nguyen\*, Soon-Yong Kwon, Sung Youb Kim. “Auxeticity in Metals and Periodic Metallic Porous Structures Induced by Elastic Instabilities (Phys. Status Solidi B 1/2019).” *physica status solidi (b)*. [doi:10.1002/pssb.201800122](https://doi.org/10.1002/pssb.201800122). (\* equal contribution)

### Preprints

- 2022 Cao Thang Nguyen, Sung Youb Kim. “Origami-inspired Graphene/PMMA composite with tunable auxetic property.” [private arXiv](#).
- 2022 Cao Thang Nguyen, Sung Youb Kim. “An enhanced sampling approach for computing the temperature-dependent free energy of solid surface and solid-liquid interface.” [private arXiv](#).
- 2021 Cao Thang Nguyen, Sung Youb Kim. “Mechanical vs. thermodynamic melting of metals from the mean-force dynamics calculation.” [private arXiv](#).
- 2021 Cao Thang Nguyen, Duc Tam Ho, Sung Youb Kim. “Coalescence-enhanced melting in the incipient stage of surface melting.” [private arXiv](#).
- 2020 Cao Thang Nguyen, Viet Hung Ho, Sung Youb Kim. “Finite-size effect on the thermodynamics melting predicted by free energy approach.” [private arXiv](#).

### Codes/Tools

- 2021 Cao Thang Nguyen. “Thang’s Tool is an object-oriented Python package for pre-processing and post-processing data from MD simulations.”. *This package is available for both [PIP installation](#) and [Conda installation](#), with the [full documentation](#).*

Updated: September 2022