

**SCHOOL OF ENGINEERING AND APPLIED SCIENCE  
CURRICULUM VITAE FORMAT**

January 8<sup>th</sup>, 2020  
George Ilhwan park  
+1-215-898-5596 / gipark@seas.upenn.edu  
3401 Walnut St, Rm 524A, Philadelphia, PA, 19104

Education

|             |                      |                            |
|-------------|----------------------|----------------------------|
| Sep. 2014,  | Ph.D. in Mech. Eng., | Stanford University.       |
| June. 2011, | M.S. in Mech. Eng.,  | Stanford University.       |
| Feb. 2009,  | B.S. in Mech. Eng.,  | Seoul National University. |

Academic Positions Held

|                    |                       |                             |
|--------------------|-----------------------|-----------------------------|
| 01/2018 – Present, | Assistant Professor., | University of Pennsylvania. |
| 01/2017 – 12/2017, | Eng. Research Assoc., | Stanford University.        |
| 10/2014 – 12/2016, | Postdoctoral Fellow,  | Stanford University.        |
| 09/2009 – 09/2014, | Research Assistant,   | Stanford University.        |

Honors/Distinctions

|   |                    |       |
|---|--------------------|-------|
| CTR Postdoctoral Fellowship,              | Stanford Univ.,    | 2014. |
| NASA Aeronautics Scholarship,             | NASA,              | 2012. |
| Stanford Graduate Fellowship,             | Stanford Univ.,    | 2010. |
| Franklin and Caroline Johnson Fellowship, | Stanford Univ.,    | 2010. |
| Top graduating student honor (ME: 1/174), | Seoul Nat'l Univ., | 2009. |

Publications in Refereed Journals/Transactions

1. A. Lozano-Duran, M. Giometto, **G. I. Park**, and P. Moin, “Non-equilibrium three-dimensional boundary layers at Moderate Reynolds numbers”, *Journal of Fluid Mechanics*, 883 A20 (2020).
2. S. T. Bose and **G. I. Park**, “Wall-modeled Large-Eddy Simulation for Complex Turbulent Flows”, *Annual Review of Fluid Mechanics*. 50: 535–561 (2018).
3. X. I. A. Yang, **G. I. Park**, and P. Moin, “Log-layer mismatch and modeling of the fluctuating wall stress in wall-modeled large-eddy simulations”, *Physical Review Fluid* 2, 104601 (2017).
4. **G. I. Park**, “Wall-Modeled Large-Eddy Simulation of a High Reynolds Number Separating and Reattaching Flow”, *AIAA Journal* 55:3709 – 3721 (2017).
5. **G. I. Park**, M. Bassenne, J. Urzay, and P. Moin, “A simple dynamic subgrid-scale model for LES of particle-laden turbulence”, *Physical Review Fluid* 2, 044301 (2017).
6. M. Bassenne, J. Urzay, **G. I. Park** and P. Moin, “Constant-energetics physical-space forcing methods for improved convergence to homogeneous-isotropic turbulence with application to particle-laden flows”, *Physics of Fluids* 28, 035114 (2016).
7. **G. I. Park** and P. Moin, “Space-time characteristics of wall-pressure and wall shear-stress fluctuations in wall-modeled large eddy simulation”, *Physical Review Fluids* 1, 024404 (2016).

8. **G. I. Park** and P. Moin, “Numerical aspects and implementation of a two-layer zonal wall model for LES of compressible turbulent flows on unstructured meshes”, *Journal of Computational Physics* 305, 589–603 (2016).
9. **G. I. Park** and P. Moin, “An improved dynamic non-equilibrium wall-model for large eddy simulation”, *Physics of Fluids* 26, 015108 (2014).
10. **G. I. Park**, J. M. Wallace, X. Wu, and P. Moin, “Boundary layer turbulence in transitional and developed states”, *Physics of Fluids* 24, 035105 (2012).

#### Manuscripts in Preparation

1. Y. Lv, X. I. A. Yang, **G. I. Park** and M. Ihme, “An enriched discontinuous Galerkin method for wall-modeled large-eddy simulations”.

#### Refereed Conference Proceedings

N/A

#### Books/Chapters in Books

1. P. Moin, J. Bodart, S. T. Bose, and **G. I. Park**, “Wall-Modeling in Complex Turbulent Flows”, in *Advances in Fluid-Structure Interaction* (M. Braza, A. Bottaro, and M. Thompson Eds.), Springer International Publishing, 207-219, 2016.

#### Current Research Grants

1. “Assessment of Wall-Modeled LES in Nonequilibrium Flows with Emphasis on Grid Independency”, NASA (Jan. 2019 to Jan. 2022), \$584k (**GIP: sole PI**)
2. “Physical understanding and predictive modeling of high Reynolds number non-equilibrium turbulent boundary layers.” US Office of Naval Research (Mar. 2018 – Jan. 2021), \$170k (**GIP: subaward PI**; Parviz Moin (Stanford): PI of the prime award).
3. “Uno: Underactuated Naturally-stabilized One-motor Robot”, DARPA SHRIMP: SHort-Range Independent Microrobotic Platforms. (Mar. 2019 to Mar. 2021), (**GIP: co-PI**; Mark Yim (Penn): PI).

#### Pending Research Grants

N/A

#### Past Research Grants

1. “Large-Eddy Simulation of a Commercial Transport Aircraft Model”, US Department of Energy, INCITE program, 240 million core hours (Argonne National Laboratory, IBM Blue Gene/Q, Mira ), 2018 (GIP: co-PI, see <http://www.doeleadershipcomputing.org/wp-content/uploads/2019/03/2018INCITEFactSheets.pdf>)
2. “Large-Eddy Simulation of a Commercial Transport Aircraft Model”, US Department of Energy, INCITE program, 24 million n hours (Argonne National Laboratory, IBM Blue Gene/Q, Mira ), 2019 (**GIP: co-PI**, see <http://www.doeleadershipcomputing.org/wp-content/uploads/2019/03/2019INCITEFactSheets.pdf>).

### **Invited Seminars/Lectures/Presentations**

1. Clarkson University, Clarkson Center for Complex Systems Science (C<sup>3</sup>S<sup>2</sup>) seminar series, Potsdam, NY, 02/28/2020.
2. TACC and Oden Institute Workshop on Future Directions in Extreme Scale Computing for Scientific Grand Challenges (invited speaker), Texas Advanced Computing Center, UT Austin, TX, 01/09/2020 - 01/10/2020.
3. “Physical understanding and predictive modeling of high Reynolds number nonequilibrium turbulent boundary layers”, Mechanical Engineering Seminar, Seoul National University, 08/14/2019.
4. “Wall-Modeled LES for Complex Turbulent Flows”, Mechanical Engineering Seminar, the City College of New York, New York, NY, 03/21/2019.
5. “Wall-Modeled LES for Complex Turbulent Flows”, Fluid Dynamics Research Consortium Seminar, Pennsylvania State University, University Park, PA, 02/08/2018.

### **Membership/Leadership Positions in Scientific and Professional Societies (organizing roles)**

American Physical Society, American Institute of Aeronautics and Astronautics.

### **Teaching Experience**

1. MEAM302 – Fluid mechanics (Fall 2019)
2. MEAM538 – Turbulence (Spring 2018, Spring 2019)
3. ENM540 – Numerical solution of initial boundary value problems (Spring 2020)

### **Dissertations/Theses Supervised**

N/A

### **Undergraduate Projects Supervised**

N/A

### **Service (to Department/School/University and research community)**

1. PhD admission committee, MEAM (Spring 2018)
2. PhD admission committee, MEAM (Spring 2019)
3. PICS seminar series chair (Fall 2018 – Present)

### **Patents**

N/A

### **Consulting Activities, if applicable**

N/A

### **Startup Ventures/Company Ownership, if applicable**

N/A

### **Other (media publicity, alternative media, congressional testimony, etc.)**

1. “Engineering an accurate, affordable model for turbulence in air and space travel”, Penn Today, Mar. 27, 2019 (<https://penntoday.upenn.edu/news/penn-engineer-george-ilhwan-park-aerospace-research-nasa>)