Chaitanya Ghodke
2101 NW Grant Avenue, Apt 1
Corvallis, OR 97330

404-934-5388
ghodkec@onid.orst.edu
chaitanyaghodke1@gmail.com

Work Experience

- **Computational Flow Physics Lab, Oregon State University** — Corvallis, OR
  Graduate Research Assistant — *Jan '13 - current*
  - As a part of National Science Foundation (NSF) project, work is focused on fully resolved **D**irect **N**umerical **S**imulations of particle-turbulence interactions in oscillatory boundary layers over a rough bed, representative of coastal environment.
- **Center for Turbulence Research, Stanford University** — Stanford, CA
  Visiting Scholar for Summer Program 2014 — *July '14 - Aug '14*
  - Particle-resolved **D**irect **N**umerical **S**imulations to study particle-turbulence interactions.
- **CD-Adapco** — Detroit, MI
  CFD Application Engineer — *Aug '11 - Dec '12*
  - Job involved performing CFD simulations to efficiently optimize design on a diverse range of industrial problems including spray modeling, combustion, 6 DOF motions, aerodynamics, biomedical applications.
- **Computational Combustion Lab, Georgia Institute of Technology** — Atlanta, GA
  Graduate Research Assistant — *Jan '09 - Jul '11*
  - As a part of Air Force Office of Scientific Research (AFOSR) project, work was primarily focused on **L**arge **E**ddy **S**imulation of supersonic combustion for SCRAMJET application using linear eddy mixing (LEM) model, eddy break-up (EBU) and artificial neural networks (ANN) based chemical kinetics.
- **General Motors Technical Centre** — Bangalore, India
  Aerodynamics Analyst - CFD — *Jul '07 - Jul '08*
  - Computational aerodynamic analysis of automotive vehicles for drag prediction and optimization of car exterior-underhood components.
- **Fluent India Pvt. Ltd.** — Pune, India
  Intern - Aerospace — *Oct '06 - Apr '07*
  - Development and validation of a wave boundary condition in a towing tank model using volume of fluid (VoF) surface capturing method.
- **Thermax Ltd.** — Pune, India
  Intern - Process Heat Division — *May '04 - May '05*
  - Numerical analysis of heat transfer coefficient in thermic fluid heaters.

Education

- **Oregon State University, Corvallis** — Jan '13 - Dec '16 (expected)
  PhD student, Department of Mechanical Engineering (Advisor: Prof. Sourabh Apte) — *4.0/4.0*
  Relevant Courses: Turbulent Flow Modeling, Applied Heat Transfer, Gas Dynamics
- **Georgia Institute of Technology, Atlanta** — Jan '09 - Jul '11
  Master of Science, Department of Aerospace Engineering — *3.64/4.0*
  Relevant Courses: Combustion, Turbulent Flows, High Temperature Gas Dynamics, Turbulent Combustion, Kinetics and Thermodynamics of Gases, Probability and Statistics
- **Moscow State University in association with IIIT, India** — Sep '05 - Jul'07
  Master of Science with specialization in CFD — *3.7/4.0*
  Relevant Courses: CFD, Multiphase Flows, Parallel Computing
- **Pune University, India** — Jul '01 - Jul '05
  Bachelor of Technology - Mechanical Engineering — *65.8% - First Class*

Journal Publications

- **Ghodke, C.**, and Apte, S.,"**Particle-resolved DNS of oscillatory wall-bounded flow over a closely-packed layer of spherical particles**", in preparation for *Journal of Fluid Mechanics*
- **Ghodke, C.**, and Apte, S.,"**Spatio-temporal correlations of hydrodynamic forces on particles in an oscillatory wall-bounded flow environment**", in preparation for *Physics of Fluids*
- **Ghodke, C.**, Skitka, J., and Apte, S.,"**Characterization of oscillatory boundary layer over a closely packed bed of sediment particles**", *Special Issue on Journal of Computational Multiphase Flows, Vol. 6, No. 4, November, 2014*
- **Ghodke, C.**, Apte, S., and Urzay, J.,"**Direct numerical simulations of oscillatory wall-bounded flow over a closely-packed fixed bed of spherical particles**", *Center for Turbulence Research, Proceedings of the Summer Program 2014*
- Grady, N.R., Pitz, R.W., Carter, C.D., **Ghodke, C.D.**, Menon, S., "**Hydroxyl Tagging Velocimetry in a supersonic flow over a ramped-wall cavity flameholder with an upstream strut**", *Journal of Propulsion and Power, Vol. 28, No. 5, September - October, 2012*

Referred Conferences and Reports

- **Ghodke, C.**, and Apte, S.,"**Spatio-temporal correlations of hydrodynamic forces on particles in an oscillatory wall-bounded flow environment**", to be submitted to *" DNS/LES and Hybrid RANS/LES Methods", Proceedings of the ASME-JSME-KSME Joint Fluids Engineering Summer Meeting 2015.*
Received ASME Graduate Student returning Scholarship for outstanding paper
- **Ghodke, C.**, and Apte, S.,"**DNS of oscillatory boundary layer over a closely packed layer of sediment particles**", *" DNS/LES and Hybrid RANS/LES Methods", Proceedings of the ASME Fluids Engineering Summer Meeting 2014.*
Received ASME Graduate Student Scholarship for outstanding paper
- **Ghodke, C.**, Apte, S., and Urzay, J.,"**Particle-resolved DNS of turbulent oscillatory flow over a layer of fixed particles**", *67th Annual Meeting of APS-DFD, San Francisco, November 2014*
- **Ghodke, C.**, Skitka, J., and Apte, S.,"**DNS of oscillatory boundary layer over a closely packed layer of sediment particles**", *66th Annual Meeting of APS-DFD, Pittsburgh, November 2013*
- **Ghodke, C.**, Pranatharthikaran, J., Retaureau, R., Menon, S., "**Numerical and experimental studies of flame stability in a cavity stabilized hydrocarbon-fueled scramjet**", *17th AIAA International Space Planes and Hypersonic Systems and Technologies Conference, San Francisco, California, Apr, 2011*
- **Ghodke, C.**, Choi, J., Srinivasan, S., Menon, S., "**Large eddy simulation of supersonic combustion in a cavity-strut flameholder**", *AIAA-2011-323, 49th AIAA Aerospace Sciences Meeting, Orlando, Florida, Jan 4-7, 2011*
- Choi, J., **Ghodke, C.**, Menon, S., "**Large eddy simulation of cavity flame-holding in a Mach 2.5 cross flow**", *AIAA-2010-414, 48th AIAA Aerospace Sciences Meeting, Orlando, Florida, Jan 4-7, 2010*
- Grady, N.R., Pitz, R.W., Frankland, J.H., **Ghodke, C.D.**, Pranatharthikaran, J., Menon, S., Carter, C.D, "**Comparison of experimental and numerical results of a supersonic reacting flow over a piloted, ramped Cavity**", *Combustion Fundamentals and Applications, Vol. 2 , Spring Technical Meeting of the Central States Section of the Combustion Institute, 2012*
- **Ghodke, C.**, Pande, B., "**Study of insect flight using CFD approach with its application as micro-air vehicles,**", *SIAT - Symposium on International Automotive Technology, Pune, India, 2005*

Awards and Academic Honors

- American Society of Mechanical Engineers **(ASME) Graduate Student returning Scholarship**
- **Center for Turbulence Research, Stanford University Scholarship** for Summer Program 2014
- American Society of Mechanical Engineers **(ASME) Graduate Student Scholarship for outstanding paper** at Fluids Engineering Summer Meeting 2014
- **American Physical Society (APS) scholarship** to attend Energy Research Meeting 2014
- **Rickert fellowship and Mechanical Engineering scholarship, Oregon State University**
- **First rank** - Master of Science program, Moscow State University and IIIT
- **First prize** - Technical paper presentation competition, SAE India Annual Social 2004, Automotive Research Association Of India (ARAI), Pune

Professional Service Activities

- Review manuscripts for **Journal of Propulsion and Power**
- Member of **ASME CFD technical committee**, review manuscripts for ASME
- Organization of various technical events and industrial visits for SAE and ASHRAE student members

Teaching Experience

- **ME 567, Engineering Applications of Computational Fluid Dynamics**, Department of Mechanical Engineering
  Graduate Teaching Assistant for Prof. Deborah Pence, (Jan '15 - present)
- **ME 311, Introduction to Thermal-Fluid Sciences**, Department of Mechanical Engineering
  Graduate Teaching Assistant for Prof. Sourabh Apte, (Jun '13 - Sept '13)
- **ME 373, Mechanical Engineering Methods**, Department of Mechanical Engineering
  Graduate Teaching Assistant for Prof. Nancy Squires, (Jan '13 - Apr '13)
- While working at CD-adapco, conducted various **professional training sessions of STAR-CCM+** for industrial clients, university professors and students

Technical Skills

Languages: Fortran, MPI

Packages: STAR-CCM+, STAR-CD, FLUENT, ICEM-CFD, ANSA, T-Grid, Matlab, CHEMKIN, FieldView, TecPlot

Professional Organizations

- American Physical Society (APS)
- American Society of Mechanical Engineers (ASME)

Contact

- Email: ghodkec@onid.orst.edu, chaitanyaghodke1@gmail.com
- Contact: 404-934-5388
- Visa: F1 student

References

- Available upon request