

# Chaplygin Andrey

*Curriculum Vitae*

## PERSONAL DETAILS

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<i>Address</i>	Moscow, Russia
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<i>Github</i>	<a href="https://github.com/Andrcraft9">https://github.com/Andrcraft9</a>

## EDUCATION

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**MSc.** **2017-2019**

*Lomonosov Moscow State University*

Faculty of Computational Mathematics and Cybernetics, Department of Computational Technologies and Modeling.

**Thesis: Load balancing method using Hilbert space-filling curves for INMOM (Institute of Numerical Mathematics Ocean Model)**

**BSc.** **2013-2017**

*Lomonosov Moscow State University*

Faculty of Computational Mathematics and Cybernetics, Department of Computational Technologies and Modeling.

**Thesis: Implementation of parallel INMOM (Institute of Numerical Mathematics Ocean Model) ocean circulation model**

## WORK EXPERIENCE

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**Schlumberger** **2016-2019**

*Researcher, Part-time*

- We simulated multiphase incompressible/compressible flow in cylindrical tube using Open-Foam and compared different numerical schemes and algorithms.
- We developed the simulator FastRadialHF for the initiation and propagation hydraulic fractures. A model of high injection rate hydraulic fractures driven by wellbore pressure pulse was developed. An efficient nonlinear solver was implemented for the fully coupled multiphysics matrix. The influence of wellbore energy source parameters on fracture characteristics was studied.

**Geometric Modeling and Interactive Systems Research Group at the CMC faculty of LMSU** **2015-2016**

*C++ Developer, Part-time*

Developing the software for visualization of navigation satellite groups motion. Software allows to observe the simulated work of the GLONASS system, where orbital satellite groups and ground stations were displayed using computer graphics and modern methods of mathematical modeling.

## SKILLS

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<i>Programming Languages</i>	C++/C, FORTRAN, PYTHON, WOLFRAM MATHEMATICA
<i>Parallel Computing</i>	MPI, OPENMP, CUDA
<i>Computer Graphics</i>	OPENSCENEGRAPH, OPENGGL
<i>Other</i>	GIT, L <sup>A</sup> T <sub>E</sub> X, QT, PETSC, OPENFOAM, LAPACK/BLAS

## PUBLICATIONS

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Chaplygin A.V., Diansky N.A., and Gusev A.V.  
Load balancing using Hilbert space-filling curves for parallel shallow water simulations. *Numerical methods and programming*. Vol.20, 2019.

Diansky N.A, Fomin V.V., Grigoriev A.V., Chaplygin A.V., Zatsepin A.G.  
Spatial-Temporal Variability of Inertial Currents in the Eastern Part of the Black Sea in a Storm Period. *Physical Oceanography*. Vol.26, Iss.2, 2019.

Maxim Chertov, Andrey Chaplygin.  
Evaluating characteristics of high-rate hydraulic fractures driven by wellbore energy source. *Engineering Fracture Mechanics*. Submitted.

## PRESENTATIONS

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Chaplygin A.V., Diansky N.A., and Gusev A.V.  
Parallel modeling of nonlinear shallow water equations. *60th MIPT Scientific Conference*, 2017.

Anatoly Gusev, Andrey Chaplygin, Nikolay Diansky.  
A full free surface ocean general circulation model in sigma-coordinates for simulation of the World Ocean circulation and its variability. *EGU General Assembly 2019*

Fomin V.V., Diansky N.A., Chaplygin A.V.  
Calculation of extreme surge in the Taganrog Bay and the use of atmospheric and ocean circulation models of different spatial resolution. *International Scientific Conference Marine Research and Education 2017*.

## ACTIVITIES

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- Rome-Moscow school of Matrix Methods and Applied Linear Algebra 2018.
- Rome-Moscow school of Matrix Methods and Applied Linear Algebra 2016.