

CURRICULUM VITAE BRUNO STUYTS

EMPLOYMENT

June 2014 – Present: Self-employed independent geotechnical consultant at ProFound BVBA

Reorganisation of geotechnical engineering workflows, engineering software development and digitization projects;

Business development of Cathie Associates' offshore Oil & Gas and Renewables clients in the EMEA region;

Project management of foundation design projects for offshore Oil & Gas and renewables projects;

Coordination and planning of R&D activities for offshore foundations and geotechnical pipe-soil interaction;

Interim IT department management and software development strategy.

January 2012 – June 2014: Group Technical Knowledge Manager at Cathie Associates

Technical Knowledge Manager for the Cathie Associates Group, consisting of 5 offices in 4 European countries. Responsible for the initiation and implementation of a group-wide knowledge sharing structure. Promoting knowledge sharing, improving technical efficiency and ensuring consistent quality of deliverables are key aspects of this role.

January 2010 – June 2014: Senior Project Engineer at Cathie Associates

Geotechnical engineer with responsibilities including:

- Conceptual, basic and detailed design of windfarm foundation projects
- Numerical analysis of soil-structure interaction
- Statistical, geostatistical and risk analysis of offshore foundations
- Business development for Oil & Gas and Renewable projects focusing on subsea contractors and Belgian developers and contractors
- Project management of onshore and offshore site investigations

September 2006 – December 2009: Project Engineer at Cathie Associates

Geotechnical engineer with responsibilities including:

- Foundation engineering for oil & gas and wind energy projects
- Development of 2D and 3D FEA capabilities
- Offshore site investigation support
- Tender support for pipeline and cable trenching projects

July 2005 – September 2005: Internship at Anglo Coal South Africa on Risk Analysis and Probabilistic Modelling of Highwall Stability.

KEY COMPETENCES

- Result driven problem solver with strong analytical skills and close attention to detail
- Strong interest in multi-discipline engineering to improve prediction methods and reduce conservatism
- Extended professional network in industry and academia
- Excellent reporting and presentation abilities
- High proficiency in Python for engineering and data science applications
- Able to work independently or as part of a team, passionate about knowledge sharing
- Comfortable working in an international and multicultural environment
- Ability to independently win consultancy and engineering work

EDUCATION

- 2001 – 2006: MSc Mining and Geotechnical Engineering (Magna Cum Laude). Katholieke Universiteit Leuven. Thesis: Probabilistic Analysis of Pre-Split Blast Efficiency for Strip Mines.
- 1996 – 2001: Secondary Education. Onze-Lieve-Vrouwecollege Oostende

LANGUAGES

- Dutch: Mother tongue
- English: Fluent, written and spoken
- French: Advanced, written and spoken
- German: Basic knowledge

SOFTWARE KNOWLEDGE

- Basic software:
 - Microsoft Office Suite (Word, Excel, Powerpoint, Access, Project)
 - Photoshop, Gimp
- Engineering software
 - Numerical analysis: ABAQUS/Standard, Abaqus/Explicit, PLAXIS2D/3D, FLAC, FLAC3D, UDEC
 - Foundation design software: OPILE, GRLWEAP
 - QGIS Spatial Data Analysis Software
- Programming tools:
 - Python and associated packages:
 - Data science: NumPy, SciPy, Pandas, scikit-learn
 - Data visualization: Matplotlib, Plotly
 - Web framework: Django
 - Jupyter notebook
 - GUI design: PyQT
 - Database management tools: Postgresql (with PostGIS), MySQL and Sqlite3
 - Source code management and continuous integration: Atlassian suite

PUBLICATIONS

- Stuyts, B., Ellery, G.D., Davidson, J., Torres, I., Rose, M.J., 2017. A methodology for the probabilistic assessment of pile refusal due to boulder encounter. SUT OSIG 2017. London, U.K.
- Stuyts, B., Cathie, D., Powell, T., 2016. Model uncertainty in uplift resistance calculations for sandy backfill. Canadian Geotechnical Journal 53(11): 1831-1840.
- Blanc, M., Thorel, L., Wallerand, R., Stuyts, B., 2016. Effect of soil profile on the response of a sliding subsea foundation. 3rd International Conference on Physical Modelling in Geotechnics, Nantes, France.
- Wallerand, R., Stuyts, B., Blanc, M., Thorel, L., Brown, N., 2015. A design framework for sliding foundations: Centrifuge testing and numerical modelling. Proceedings Offshore Technology Conference 2015. Houston, TX.
- Stuyts, B., Wallerand, R., Brown, N., 2015. A framework for the design of sliding mudmat foundations. 3rd International Symposium on Offshore Geotechnics. Oslo, Norway.
- Stuyts, B., Cathie, D., Guyatt, C., Boyde, P., Pyrah, J., 2015. Mechanical trencher modelling in hard ground: State-of-the-art. 3rd International Symposium on Offshore Geotechnics. Oslo, Norway.
- Stuyts, B., Gilbert, R.B., Cathie, D., 2013. A Reliability-Based Interpretation Framework for Pile-Supported Offshore Wind Turbines. Presented at the Offshore Technology Conference, Houston, Texas.
- Stuyts, B., 2013. Reliability-based design of offshore wind turbine foundations, in: Proc. Conference on Maritime Energy. Presented at the COME, Technische Universität Hamburg-Harburg, Hamburg, Germany.
- Versteede, H., Stuyts, B., Cathie, D., Charlier, R., 2013. Cyclic loading of caisson-supported offshore wind structures in sand. Presented at the ISSMGE Conference, Paris, France.
- Kennedy, J., Oliphant, J., Maconochie, A., Stuyts, B., Cathie, D., 2013. Caisson: A Suction Pile Design Tool. Presented at the Proceedings of the 32nd International Conference on Ocean, Offshore and Arctic Engineering, OMAE2013.
- Stuyts, B., Cathie, D., Xie, Y., 2013a. Scour assessment and measurements for pile-supported wind turbine foundations. Presented at the Proc. of the 32nd Int. Conf. on Ocean, Offshore and Arctic Engineering, OMAE2013.
- Ozsu, E., Ta, A.-N., Stuyts, B., Jaeck, C., 2013. Optimizing Pile Driving Fatigue for Offshore Foundations in Very Dense Sand: A Case Study. Presented at the Proceedings of the ASME 2013 32nd International Conference on Ocean, Offshore and Arctic Engineering, OMAE2013.
- Merritt, A.S., Schroeder, F.C., Jardine, R.J., Stuyts, B., Cathie, D., Cleverly, W., 2012. Development of pile design methodology for an offshore wind farm in the North Sea. Presented at the SUT OSIG, London.
- Stuyts, B., Cathie, D., Falepin, H., Burgraeve, A., 2012. Axial pile capacity of wind turbine foundations subject to cyclic loading. Presented at the SUT OSIG 2012, London.
- Rouainia, M., Ramsey, M., Stuyts, B., 2012. Experimental investigation of cyclically axially loaded piles. Presented at the SUT OSIG 2012, London.
- Stuyts, B., Irvine, J., Cathie, D., 2011. Assessing the stability of piled tripod foundations for offshore wind turbines under cyclic loading. Presented at the Eurodyn, Leuven, Belgium.

- Cathie, D., Falepin, H., Stuyts, B., 2011. Force-resultant plasticity models for analysis of lateral buckling: Are they really needed. Presented at the SUT Lateral buckling symposium Perth.
- Stuyts, B., Vissers, V., Cathie, D.N., Jaeck, C., Dörfeldt, S., 2010. Optimizing site investigations and pile design for wind farms using geostatistical methods: a case study. Presented at the ISFOG, Balkema, Perth, WA.

RELEVANT PROJECTS HIGHLIGHTS

Research Projects / Engineering Tool Development

- 2016 – ongoing: Development of a web-based application for pile calculations and associated Python function libraries – For Cathie Associates.
- 2016 – ongoing: Application of machine learning algorithms to geotechnical problems (e.g. pile driving, spudcan penetration, trencher performance) – For Cathie Associates.
- 2014 – ongoing: Development of database applications for pile load tests, pipeline uplift tests and other technical test data for design method improvement and project support – For Cathie Associates.
- 2013 – 2016: Performance-based design for deepwater applications. Desk study followed by specification and interpretation of laboratory testing conducted at IFSTTAR Nantes – For Subsea 7.
- 2011 – 2013: Windfarm foundation reliability analysis. Development of reliability-based design tools for independent evaluation of foundation safety.
- 2009: German windfarms. Development of a probabilistic cost-value model for large site investigations based on geostatistical methods.
- 2010: Jet trenching modelling. Implementation of a jet trenching model for sand and clay, including pump performance and cable lowering – For SMD.
- 2009 – 2012: SAFEBUCK GEO. Numerical modelling of on-bottom stability of pipelines in soft clay in collaboration with Oxford University (Prof. Chris Martin) – For SAFEBUCK JIP/Atkins Boreas.
- 2009 – 2013: CAISSON Software. Development of a Python-based application for rapid sizing of top loaded suction caissons and mooring anchors in two-layered soft clay – For Technip OED.
- 2009: German windfarms. Development of a probabilistic cost-value model for large site investigations based on geostatistical methods.
- 2008 – 2009: Yarimca Container Terminal (Turkey). Development of settlement prediction model and preparation of an instrumented trial for lumpy clay fills - For Jan De Nul.
- 2007 – 2009: UT-1/PT-1. Development of a performance model for jet trenchers – For CTC Marine Projects.

Numerical analysis

- 2013-2014: Abaqus/Standard analysis of 6DOF loading of a surface foundation on soft clay – For Subsea 7 SA
- 2013: Abaqus/Python scripting of suction bucket holding capacity analysis in Abaqus/Standard – For Technip OED Ltd
- 2012: Pipeline-soil interaction analysis during large displacements in soft clay. Scripting and automation of Abaqus/Standard analyses – For SAFEBUCK JIP
- 2011: Analysis of cyclic offshore foundation pile response with degradable elasto-plastic connectors in Abaqus/Standard – For Trianel GmbH
- 2008: Peru LNG. Back-analysis and model updating of static lateral pile load tests – For CDB Melchorita.

Concept selection, Basic and Detailed Geotechnical Design

- 2015: Beatrice OWF. Development of probabilistic boulder encounter and pile refusal estimating tool using Python. Model updating based on field data gathered during two consecutive offshore surveys – For Beatrice Offshore Wind Ltd.
- 2015: Neart Na Gaoithe offshore windfarm. Technical lead for basic design and detailed design of 64 WTG jackets in rock conditions (ongoing) – For OWECTower AS.
- 2015: Arkona Becken offshore transformer platform foundation concept selection – For Mareal SA.
- 2014: Amrumbank & Butendiek (Offshore Germany) pile driving monitoring and pile resistance verification using measured field data – For GeoSea.
- 2009 – 2013: Borkum West II Windfarm Development (Offshore Germany). Project manager for site investigation, laboratory testing, engineering reporting and foundation and installation engineering for piled tripods. Close cooperation with structural designer and development of an approved cyclic loading methodology together with Imperial College London (Prof. Richard Jardine) – For Trianel Windkraftwerk Borkum.
- 2012: Statoil Dagny platform (Offshore Norway). Probabilistic assessment of loads, pile capacity and resulting reliability of jacket structure – For Heerema Fabrication Group.