Erik F. M. Koene

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Zürich   Date of birth: October 15, 1990
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Education

2016–2020 *Oct–Nov*	**PhD in Geophysics**: ETH Zürich (CH) • *A filtering approach to remove finite-difference errors from wave equation simulations*. • Carried out under the supervision of Prof. Dr. J. Robertsson, SNF grant 2-77220-15.
2014–2016 *Aug–Aug*	**MSc in Applied Geophysics**: TU Delft (NL), ETH Zürich (CH) & RWTH Aachen (DE) • Overall result: 8.6/10; thesis 9.5/10. *(Cum laude / with honors)*.
2010–2014 *Aug–Aug*	**BSc in Bèta-Gamma**: Universiteit van Amsterdam (NL) • Overall result: 8.4/10; thesis 9.0/10. *(Cum laude / with honors)*.

Relevant Professional Experience

2016–2016 *Mar–Aug*	**Research & Engineering Internship**: WesternGeco-Schlumberger, London (UK) Development of 2 novel digital signal processing techniques that increase data fidelity, which are being implemented in Petrel to be used by the seismic industry worldwide.
2015–2015 *June–Sept*	**Research Student**: ETH Zürich, Zürich (CH) Design, realization (with NI LabView) and analysis of seismic experiments.
2014–2015 *Feb–Feb*	**Data Scientist Intern**: TNO - Geological Survey of the Netherlands, Utrecht (NL) Python-aided creation of database with QA/QC of 45 000 sedimentary analyses, uncovering new spatio-temporal trends in the Dutch stratigraphy.

Languages

Dutch	**Native proficiency**
English	**Excellent – bilingual profiency** (IELTS, 2014: 8/9; GRE, 2015: 164/170)
German	**Limited working proficiency** (Universität Zürich A2 course, 2017: 6/6)

Technical Skills

Excellent proficiency in the following computer tools:

OS	Linux/Ubuntu/Red Hat, Windows, OS X.
Programming	MATLAB, Fortran, Python. Developing knowledge of C, C++, Cuda, R.
Processing	ArcGIS, QGIS, GMT, Petrel, ProMAX.
Office	MS Office (Word, Excel, Powerpoint, Access), Adobe Illustrator, LaTeX.

Additionally ● Field experience with geophysical surveying techniques (EM31, ERT, GPR, Magnetics, SRT, Sonar). ● Comfortable with handling large data sets and data-reduction. ● Skillful in applied mathematics, statistics, and machine learning. ● Teaching experience in numerical modeling.

Awards & Honors

2020	GEOPHYSICS **Reviewer Of The Year Award**.
2020	**Guido Bonarelli Award** (best paper presentation at EAGE in London).
2020	**Geophysics Bright Spots** inclusion of 'Koene & Robertsson (2020)' in *The Leading Edge*.
2018	**Best student paper presentation** at SEG in Houston.
2016	**Cum laude (with honors)** in MSc studies.
2014	**Cum laude (with honors)** in BSc studies.

Memberships, Services & Offices Held

2018–present	**Reviewer**: GEOPHYSICS (20+ reviews performed).
2018–2020	**President**: Student Association of Geophysicists at ETH (SAGE).
2018–present	**Member**: European Association of Geoscientists & Engineers (EAGE).
2016–present	**Member**: Society of Exploration Geophysicists (SEG).

Teaching Experience

2016–2020	**Teaching Assistant** in the *Numerical Modelling for Applied Geophysics* class.
2019–2020	**Course Development** (creating lecture slides, homework exercises, . . .) in the *Numerical Modelling for Applied Geophysics* class.

Publications

Peer-reviewed papers

Koene, E. F. M., Wittsten, J. & Robertsson, J. O. A. (2021). Finite-difference modeling of wave propagation in the vicinity of dipping interfaces: a comparison of anti-aliasing and equivalent medium approaches. Geophysical Journal International (*Submitted*).

Wittsten, J., **Koene, E. F. M.**, Andersson, F. & Robertsson, J. O. A. (2021). Removing numerical dispersion from linear evolution equations. Pure and Applied Analysis (*Submitted*). https://arxiv.org/abs/1906.10743.

Thomsen, H. R., **Koene, E. F. M.**, Robertsson, J. O. A., van Manen, D.-J. (2021). FD-injection-based elastic wavefield separation for open and closed configurations. Geophysical Journal International (*Submitted*).

Thomsen, H. R., **Koene, E. F. M.**, Robertsson, J. O. A., van Manen, D.-J. (2021). Elastic wavefield separation utilizing particle velocity recordings along an open free surface. Geophysics (*Submitted*).

Koene, E. F. M., Robertsson, J. O. A. & Andersson, F. (2021). Anisotropic elastic finite-difference modeling of sources and receivers on Lebedev grids. Geophysics (*Just Accepted*). https://doi.org/10.1190/geo2020-0522.1.

Jaimes-Osorio, L. E., Malcolm, A., Zheglova, P., **Koene, E. F. M.** & Rasmus, T. H. (2021). Building a fast elastic local solver. Geophysics (*Just Accepted*). https://doi.org/10.1190/geo2020-0468.1.

Koene, E. F. M., Robertsson, J. O. A. & Andersson, F. (2020). A consistent implementation of point-sources on finite-difference grids. Geophysical Journal International, 223, 1144-1161. https://doi.org/10.1093/gji/ggaa383.

Koene, E. F. M., Robertsson, J. O. A., (2020). Optimal finite-difference operators for arbitrarily sampled data. Geophysics, 85, F39-F51. http://doi.org/10.1190/geo2019-0081.1.

Rijsdijk, K., Buijs, S., Quartau, R., Aguilée, R., Norder, S., Ávila, S., Nunes, J., Elias, R., Melo, C., Stocchi, P., **Koene, E. F. M.**, Seijmonsbergen, A., de Boer, W. & Borges, P. (2020). Recent geospatial dynamics of Terceira (Azores, Portugal) and the theoretical implications for the biogeography of active volcanic islands. Frontiers of Biogeography. https://doi.org/10.21425/F5FBG45003.

Koene, E. F. M., Robertsson, J. O. A., Broggini, F., & Andersson, F. (2018). Eliminating time dispersion from seismic wave modeling. Geophysical Journal International, 213, 169-180. http://doi.org/10.1093/gji/ggx563.

Simaiakis, S., Rijsdijk, K., **Koene, E. F. M.**, Norder, S., Van Boxel, J., Stocchi, P., & Tjørve, K. (2017). Geographic changes in the Aegean Sea since the Last Glacial Maximum: Postulating biogeographic effects of sea-level rise on islands. Palaeogeography, palaeoclimatology, palaeoecology, 471, 108-119. https://doi.org/10.1016/j.palaeo.2017.02.002.

Extended conference abstracts

Koene, E. F. M., Robertsson, J. O. A., & Andersson, F. (2020). A Consistent Implementation of Point-Sources on Finite-Difference Grids. In 82nd EAGE Annual Conference & Exhibition 2020. European Association of Geoscientists & Engineers. https://doi.org/10.3997/2214-4609.202011016.

Koene, E. F. M., Wittsten, J., Robertsson, J., & Andersson, F. (2019). Eliminating Time Dispersion from Visco-Elastic Simulations with Memory Variables. In 81st EAGE Conference & Exhibition 2019. European Association of Geoscientists & Engineers. https://doi.org/10.3997/2214-4609.201901532.

Koene, E. F. M., & Robertsson, J. (2018). A finite-difference algorithm to retrieve finite-difference modeled elastic waves at the free surface. In SEG Technical Program Expanded Abstracts 2018. Society of Exploration Geophysicists. https://doi.org/10.1190/segam2018-2997601.1.

Koene, E. F. M., & Robertsson, J. (2017). Removing numerical dispersion artifacts from reverse time migration and full-waveform inversion. In SEG Technical Program Expanded Abstracts 2017. Society of Exploration Geophysicists. https://doi.org/10.1190/segam2017-17631589.1.