Curriculum Vitae **14 July 2021**

DOYEON KIM

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PROFESSIONAL PREPARATION

Ph.D. *Earth and Atmospheric Sciences*, **Cornell University**	May 2018
M.S. *Civil and Environ. Engineering*, **Yonsei University**, S. Korea	Sept 2012
B.A. *Civil and Environ. Engineering*, **Yonsei University**, S. Korea	Sept 2010

PROFESSIONAL APPOINTMENTS

2021.10.01-	Oberassistent, ETH Zurich
2020-present	Science Collaborator of the *GEODES* Virtual Institute (Prof. Nick Schmerr, PI)
2019-present	Collaborating Scientist for Mars *InSight* Mission
2018-present	Postdoctoral Fellow, University of Maryland (Prof. Ved Lekic, PI)
2018-2020	Visiting Scientist, Cornell University
Summer 2017	Graduate Student Intern, Lawrence Livermore National Lab
2016-2017	Research and teaching assistant, Cornell University
2014-2016	NSF Earth-Energy System IGERT Trainee, Cornell University
2013-2014	Teaching Assistant, Cornell University
2012-2013	Research Associate, GIS & Remote Sensing Lab, Yonsei University
2010-2012	Research and teaching assistant, Yonsei University
2006-2008	Military Unit Supply Specialist, U.S. Army Humphreys, S. Korea

PUBLICATIONS

Kim, D., V. Lekic, J. Irving, N. Schmerr, B. Knapmeyer-Endrun, R. Joshi, M. Panning, B. Tauzin, F. Karakostas, R. Maguire, Q. Huang, A. Khan, D. Giardini, M. A. Wieczorek, P. Lognonné, W. B. Banerdt, (2021), Improving subsurface constraints on Earth and Mars with PPs receiver functions, ***J. Geophys. Res***., *under review.*

Kim, D., P. Davis, V. Lekic, R. Maguire, N. Compaire, M. Schimmel, E. Stutzmann, J.C.E. Irving, P. Lognonné, J.-R. Scholz, J. Clinton, G. Zenhausern, N. Dahmen, M. Panning, R. F. Garicia, K. Hurst, B. Knapmeyer-Endrun, F. Nimmo, W. T. Pike, L. Pou, N. Schimerr, S. C. Stähler, B. Tauzin, R. Widmer-Schnidrig, W. B. Banerdt (2021), Potential pitfalls in the analysis and structural interpretation of Mars' seismic data from InSight, ***BSSA****, Special Issue on Mars seismology, in revision.*

Stähler, S., A. Khan, W. B. Banerdt, P. Lognonné, D. Giardini, S. Ceylan, M. Drilleau, A. C. Duran, R. F. Garcia, Q. Huang, **D. Kim**, V. Lekic, H. Samuel, M. Schimmel, N. Schmerr, D. Sollberger, E. Stutzmann, Z. Xu, D. Antonangeli, C. Charalambous, P. Davis, J. C. E. Irving, T. Kawamura, M. Knapmeyer, R. Maguire, A. G. Marusiak, M. P. Panning, C. Perrin, A-C. Plesa, A. Rivoldini, C. Schmelzbach, G. Zenhausern, E. Beucler, J. Clinton, N. Dahmen, M. van Driel, T. Gudkova, A. Horelston, W. T. Pike, M. Plasman, S. E. Smrekar (2021), Seismic detection of the Martian core, ***Science,*** doi: 10.1126/science.abi7730. Featured in *Science Cover and perspectives.*

Knapmeyer-Endrun, B., M. P. Panning, F. Bissig, R. Joshi, A. Khan, **D. Kim**, V. Lekic, B. Tauzin, S. Tharimena, M. Plasman, N. Compaire, R. F. Garcia, L. Margerin, M. Schimmel, E. Stutzmann, N. C. Schmerr, E. Bozdag, A-C. Plesa, M. A. Wieczorek, A. Broquet, D. Antonangeli, S. M. McLennan, H. Samuel, C. Michaut, L. Pan, S. E. Smrekar, C. L. Johnson, N. Brinkman, A. Mittelholz, A. Rivoldini, P. M. Davis, P. Lognonné, B. Pinot, J-R. Scholz, S. C. Stahler, M. Knapmeyer, M. van Driel, D. Giardini, and W. B. Banerdt (2021), Crustal thickness and layering of Mars from InSight seismic data, ***Science,*** doi: 10.1126/science.abf8966. Featured in *Science Cover and perspectives.*

Khan, A., S. Ceylan, M. van Driel, D. Giardini, P. Lognonné, H. Samuel, N. C. Schmerr, S. C. Stahler, A. C. Duran, Q. Huang, **D. Kim**, C. Charalambous, J. F. Clinton, P. M. Davis, M. Drilleau, F. Karakostas, V. Lekic, R. R. Maguire, C. Michaut, M. P. Panning, W. T. Pike, B. Pinot, M. Plasman, J-R. Scholz, R. Widmer-Schniddrig, T. Spohn, S. E. Smrekar, and W. B. Banerdt (2021), Imaging the upper mantle structure of Mars with InSight seismic data, ***Science***, doi: 10.1126/science.abf2966. Featured in *Science Cover and perspectives*

Schimmel, M., E. Stutzmann, P. Lognonné, N. Compaire, P. Davis, M. Drilleau, R. Garcia, **D. Kim**, B. Knapmeyer-Endrun, V. Lekic, L. Margerin, M. Panning, N. Schmerr, J-R. Scholz, A. Spiga, B. Tauzin, and W. B. Banerdt (2021), Seismic Noise Autocorrelations on Mars. ***Earth and Space Science***, e2021EA001755.

Compaire, N., L. Margerin, R. F. Garcia, B. Pinot, M. Calvet, G. Orhand-Mainsant, **D. Kim**, … et al., (2021), Autocorrelation of the ground vibration recorded by the SEIS-InSight seismometer on Mars, ***J. Geophys. Res***., doi: 10.1029/2020JE006498.

Brown**,** L., and **D. Kim** (2020), Extensive sills in the crust from deep seismic reflection profiling seismic data, ***Geosciences***, 10(11), 449, doi: 10.3390/geosciences10110449. *Special Issue: Future advances in basin modeling: suggestions from current observations, analyses, and simulations.*

Kim, D., V. Lekic, B. Menard, D. Baron, and M. Taghizadeh-Popp (2020), Sequencing Seismograms: A panoptic view of scattering in core-mantle boundary region, ***Science***, doi: 10.1126/science.aba8972. Featured in *Science perspectives* & *IRIS member highlights.*

Kim, D., and V. Lekic (2019), Groundwater variations from autocorrelation and receiver functions, ***Geophysical Research Letters***, doi: 10.1029/2019GL084719. *Selected as Editors' Highlights in EOS & Science Highlights by IRIS.*

Kim, D., K. Keranen, G. Abers, and L.D. Brown (2019), Enhanced resolution of the subducting plate interface in Central Alaska from autcorrelation of local earthquake coda, ***J. Geophys. Res***., doi:10.1029/2018JB016167.

Kim, D., and L. D. Brown (2019), From trash to treasure: 3D basement imaging with "excess" data from oil and gas exploration, ***AAPG Bulletin***, doi:10.1306/12191817420.

Kim, D., L. D. Brown, K. Arnason, O. Gudmundsson, K. Agustsson, O. G. Flovenz (2018), Magma "bright spots" mapped beneath Krafla, Iceland, using RVSP imaging of reflected waves from microearthquakes, ***J. Volcanology and Geotherm. Res***., Special Issue: Reykjanes, Iceland. doi:10.1016/j.jvolgeores.2018.04.022

Kim, D., L. D. Brown, K. Arnason, K. Agustsson, and H. Blanck (2017), Magma reflection imaging in Krafla, Iceland, using microearthquake sources, ***J. Geophys. Res***., doi:10.1002/2016JB013809.

Quiros, D. A., L. D. Brown, and **D. Kim** (2016), Seismic interferometry of railroad induced ground motions: body and surface wave imaging, ***Geophysical Journal of International***, 205(1), 301-313.

PUBLICATIONS (*submitted* / *in prep.*)

Karakostas, F., N. Schmerr, R. Maguire, Q. Huang, **D. Kim**, V. Lekic, L. Margerin, C. Nunn, S. Menina, T. Kawamura, P. Lognonné, D. Giardini, and W. B. Banerdt (2021), Scattering attenuation of the Martian interior through coda wave analysis, ***BSSA**, Special Issue on Mars seismology**,** in review*. (available on request)

Huang, Q., … **D. Kim**, et al. (2021), The depth of the Mantle Transition Zone in Mars, *in internal review. (confidential manuscript)*

Kim, D., V. Lekic, and N. Schmerr (2021), Obtaining robust geophysical constraint from planetary explorations: the full waveform perspective, *in prep. (available on request)*

Lekic, V., **D. Kim**, and B. Menard (2021), Sequencing geophysical signals to glean structural Insights, *in prep.* (available on request)

Pearson, K., **D. Kim**, V. Lekic, and K. Keranen (2021), Aftershock of the 2016 Pawnee earthquake recorded by a dense nodal array, *in prep. (available on request)*

Kim, D., Q. Huang, R. Maguire, V. Lekic, N. Schmerr, et al. (2021), The seismic structure of Mars from multiple reflected body waves as detected by source arrays, *in prep.*

INVITED TALKS

Kim. D., Exploring multi-scale mantle dynamics with computational methods, *American Geophysical Union,* Fall Meeting *2021.*

Kim. D., The Geological Society of Washington, March meeting, 2021

Kim. D., Potomac Geophysical Society, December meeting, 2020.

Kim. D., Multi-disciplinary InSights on Mantle Heterogeneity from Geochemistry, Imaging, Modeling, and Experiments, *American Geophysical Union,* Fall Meeting *2020.*

Kim. D., Geology department colloquium, University of Maryland, College Park, 2020

Kim. D., Geoscience and Machine Learning Seminar, *Virtual seminar series hosted by Zhejiang University* 2020.

Kim. D., UK Geophysics & Tectonics Seminar, *Virtual seminar series hosted by University of Kentucky* 2020.

Kim. D., Global Seismographic Network (GSN) Design Goals SIG Presentations, 2019 IRIS Design Goals Working Group, *American Geophysical Union*, Fall Meeting 2019.

SELECTED ABSTRACTS

Kim, D., V. Lekic, N. Schmerr, et al. (2021), Epicycle geophysical information extraction for upcoming lunar science missions, NASA Exploration Science Forum and European Lunar Symposium (NESF & ELS, 2021).

Kim, D., V. Lekic, and B. Menard (2020), Sequencing Seismograms: A Panoptic View of Scattering in the Core-Mantle Boundary Region, *Mini-Workshop on Feedbacks Between Mantle Composition, Structure, and Evolution*, 14-16 Sept. 2020.

Kim, D., V. Lekic, and N. Schmerr (2020), Obtaining Robust Seismic Constraints in Planetary Exploration: The Full Waveform Perspective, *NASA Exploration Science Forum*, Annual Meeting 2020.

Kim, D., V. Lekic, M. Huang, and T. Taira (2020), Toward Large-Scale Groundwater Monitoring with Seismic and Geodetic Data: Case Study and Future Directions, *Seismological Society of America*, Annual Meeting 2020.

Lekic, V., **D. Kim**, M. Huang, and B. Menard (2020), Gleaning Insights from Sequencing

Geophysical Timeseries, *Seismological Society America,* Annual Meeting, 2020.

Knapmeyer-Endrun, B., F. Bssig, N. Compaire, R. Joshi, R. Garcia, A. Khan, **D. Kim**, V. Lekic, L. Margerine, M. Panning, M. Schimmel, N. Schmerr, E. Stutzmann, B. Tauzin, S. Tharimena, E. Bozdag, D. Peter, A. C. Plesa, P. Lognonne, S. Smrekar, W. B. Nanerdt, and the InSight Crustal Working Group (2020), First Receiver Functions on Mars – Constraints on the Martian Crust from InSight, *Seismological Society of America*, Annual Meeting 2020.

Knapmeyer-Endrun, B., F. Bssig, N. Compaire, R. Joshi, R. Garcia, A. Khan, **D. Kim**, V. Lekic, L. Margerine, M. Panning, M. Schimmel, N. Schmerr, E. Stutzmann, B. Tauzin, S. Tharimena, E. Bozdag, D. Peter, A. C. Plesa, P. Lognonne, S. Smrekar, W. B. Nanerdt, and the InSight Crustal Working Group (2020), Seismic Constraints on the Crustal Structure of Mars from InSight Receiver functions, *Lunar and Planetary Science Conference*, 2020.

Kim, D., and V. Lekic (2019), Temporal variations in receiver functions and ambient noise autocorrelations due to groundwater changes, *American Geophysical Union*, Fall Meeting 2019.

Kim, D., V. Lekic, and B. Menard (2019), Systematic study of Sdiff scattering in the Pacific basin using a new manifold learning algorithm, *American Geophysical Union*, Fall Meeting 2019.

Compaire, N., L. Margerin, M. Calvet, M. Schimmel, E. Stutzmann, R. F. Garcia, B. Knapmeyer-Endrun, V. Lekic, **D. Kim**, B. Tauzin, and P. H. Lognonne (2019), Auto-correlation of the seismic ambient noise recorded by SEIS, the seismometer of the InSight Mission on Mars, *American Geophysical Union*, Fall Meeting 2019.

Rusk, J., B. Wu, **D. Kim**, K. Keranen, and G. McLaskey (2019), Testing Earthquake Nucleation Model Using Oklahoma Seismicity, *American Geophysical Union*, Fall Meeting 2019.

Lekic, V., and **D. Kim**, D. Baron, and B. Menard, Sequencing seismic data and models, *Seismological Society America,* Annual Meeting, 2019.

Kim, D., (2019), Enhanced resolution of the subducting plate interface in central Alaska from autocorrelation of local earthquake coda, Interior of the Earth, *Gordon Research Conference*, 2019.

Kim, D., and K. Keranen, Aftershocks of the 2016 Pawnee earthquake recorded by a dense nodal array, *American Geophysical Union*, Fall Meeting 2018.

Kim, D., E. Matzel, G. Rengin, and J. Barno, Seismic Waveform Tool (SWFT) Tutorial, Lawrence Livermore National Lab, contract no. DE-AC52-07NA27344. https://wwwgs.llnl.gov/nuclear-threat-reduction/seismic-waveform-toolkit

Kim, D., and K. Keranen, G. Abers, and L. D. Brown, High resolution image of the plate interface in Central Alaskan subduction zone using autocorrelation with local earthquakes, *Seismological Society America*, Annual Meeting 2018. https://www.seismosoc.org/presentations/high-resolution-imaging-of-theplate-interface-in-central-alaskan-subduction-zone-using-autocorrelation-with-localearthquakes/

Kim, D., and K. Keranen, G. Abers, Y. Kim, J. Li, D. J. Shillington, and L. D. Brown, Highresolution imaging of the low velocity layer in Alaskan subduction zone with scattered waves and interferometry, *American Geophysical Union*, Fall Meeting 2017. adsabs.harvard.edu/abs/2017AGUFM.T14B..08K

Kim, D., and K. Mayeda, R. Gok, J. Barno and J. Roman-Nieves, P and S wave coda calibration

in Central Asia and South Korea, *American Geophysical Union*, Fall Meeting 2017. adsabs.harvard.edu/abs/2017AGUFM.S31C0821K

Kim, D., and L. D. Brown, Every petroleum exploration survey is now a crustal survey: 3D Precambrian basement structures in the southern midcontinent of the United States revealed by reprocessing nodal exploration data, *SEG Technical Program Expanded Abstacts* 2016: pp. 2035-2040. doi.org/10.1190/segam2016-13820624.1

Kim, D., L. D. Brown, and D. A. Quiros, Body wave imaging with interferometry of aftershock Sources, *SEG Technical Program Expanded Abstacts* 2015: pp. 2594-2598. doi.org/10.1190/segam2015-5931020.1

TEACHING EXPERIENCE

Spring 2021	Co-*Lecturer, University of Maryland* Introduction to Seismology
Fall 2017	*Graduate Teaching Assistant, Cornell University* Analysis of Sustainable Energy Systems
Spring 2016	*Graduate Teaching Assistant, Cornell University* Introduction to Seismology
2013-2014	*Graduate Teaching Assistant, Cornell University* Calculus for Engineers Calculus II
2010-2012	*Graduate Teaching Assistant, Yonsei University* Basic surveying and practice

FIELDWORK EXPERIENCE

Winter 2016	*Rhyolite Magma Dynamics NSF IES project, Laguna del Maule, Chile* Shallow lacustrine reflection profiling/Service broadband seismic stations
Fall 2016	*Pawnee Nodal Experiment, Pawnee, OK* Deployment of Nodal instruments
Spring 2016	*Cornell Wind Seismic Project, Syracuse, NY* Deployment of PASSCAL broadband seismic stations
Winter 2015	*Cornell Earth Source Heating Project, Ithaca, NY* Deployment of PASSCAL broadband seismic stations
Winter 2014	*NSF East African Rift Project, Ethiopia, Africa* Deployment/Service PASSCAL broadband seismic stations
Spring 2014	*Railraod Cultural Noise Experiment, Belen, NM* Deployment of PASSCAL TEXAN recorders

GRANTS/AWARDS

June 2018	SSA 2018 Student Presentation Award
May 2018	Meyer Bender ’29 and Stephen Bender ’58 Memorial Award
Dec 2014-2017	Cornell University Graduate Conference Grant
Dec 2017	Sidney Kaufman Travel Funds, Earth and Atmospheric Sciences
Sept 2016	Graduate Research Travel Grant
2014-2016	Earth Energy IGERT Grant from NSF
Summer 2014	Long Fellowship, Cornell University
Aug 2009	Academy Award, Full Scholarship, Yonsei University

Dec 2008 Army Commendation Medal (ARCOM), U.S. Army Garrison Humphreys

MEDIA COVERAGE

The full list is provided here: https://www.altmetric.com/details/83859593/news

PROFESSIONAL SERVICE

Spring 2020	Panelist for a NASA Grant Review Committee
2020-2021	Session chair for a technical session at SSA
2019-present	Judge for the AGU Outstanding Student Paper Award
2018-present	Reviewer for Journal of Geophysical Research, Geophysical Research Letters, Journal of Volcanology and Geothermal Research, Icarus, Earth and Planetary Science Letters, G-Cubed, NSF Research Proposals

SCIENTIFIC COLLABORATORS

Brice Menard (Johns Hopkins University), Brigitte Knapmeyer-Endrun(University of Cologne), Carene Larmat (LANL), Geoff Abers (Cornell Univ.), Gylfi Hersir (ISOR), Jessica Irving (University of Bristol), Katie Keranen (Cornell Univ.), Kevin Mayeda (AFTAC), Knutur Arnason (ISOR), **Larry Brown*** (Cornell Univ.), Muawia Barazangi (Cornell Univ.), **Nick Schmerr*** (Univ. of Maryland), Paul Davis (UCLA), Rengin Gok (LLNL), Ross Maguire (Univ. of New Mexico), Simon C. Stähler (ETH), Taka'aki Taira (UC Berkeley), **Ved Lekic*** (Univ. of Maryland); **contact for reference letter*