CURRICULUM VITAE

Jongmin Kim

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EDUCATION

2022	**Ph.D.** in Interdisciplinary Program in Landscape Architecture, Seoul National University, Seoul, Republic of Korea. **Advisor:** Youngryel Ryu
2017	**MS** in Landscape Architecture, Seoul National University, Seoul, Republic of Korea. **Advisor:** Youngryel Ryu
2015	**BS** in Department of Life Science, Chung-Ang University, Seoul, Republic of Korea.

EMPLOYMENT

2022- **Postdoctoral Fellow** in Department of Environmental Sciences, University of Virginia, Charlottesville, Virginia, USA.
Advisor: Xi Yang

2023- **Postdoctoral Fellow** in Department of Organismic & Evolutionary Biology, Harvard University, Cambridge, Massachusetts, USA.
Advisor: Noel Michele (Missy) Holbrook

RESEARCH INTERESTS

Exponential Technologies, Near-Surface Remote Sensing, Land-Atmosphere Interactions, Phenology, Plant Physiology (Solar-Induced chlorophyll Fluorescence and Photosynthesis)

PUBLICATIONS

Journal Articles

2023 Yan, Y., Ryu, Y., Dechant, B., Li, B. & **Kim, J**. (2023) Dark respiration explains nocturnal stomatal conductance in rice regardless of drought and nutrient stress. *Plant, Cell & Environment*, 1–12.

2023 Hwang, Y., **Kim, J., (Co-1st author)** & Ryu, Y. (2023). Canopy structural changes explain reductions in canopy-level solar induced chlorophyll fluorescence in Prunus yedoensis seedlings under a drought stress condition, *Remote Sensing of Environment*.

2023 Kong, J., Ryu, Y., Jeong, S., Zhong, Z., Choi, W., **Kim, J**., ... & Houborg, R. (2023). Super resolution of historic Landsat imagery using a dual generative adversarial network (GAN) model with CubeSat constellation imagery for spatially enhanced long-term vegetation monitoring. *ISPRS Journal of Photogrammetry and Remote Sensing*, *200*, 1-23.

2023 Yang, X., Li, R., Jablonski, A., Stovall, A., **Kim, J.**, Yi, K., ... & Lerdau, M. (2023). Leaf angle as a leaf and canopy trait: Rejuvenating its role in ecology with new technology. *Ecology Letters*.

2022 **Kim, J.**, Ryu, Y., & Dechant, B. (2022). Development of a filter-based near-surface remote sensing system to retrieve far-red sun-induced chlorophyll fluorescence. *Remote Sensing of Environment*, *283*, 113311.

2021 **Kim, J.**, Ryu, Y., Dechant, B., Lee, H., Kim, H. S., Kornfeld, A., & Berry, J. A. (2021). Solar-induced chlorophyll fluorescence is non-linearly related to canopy photosynthesis in a temperate evergreen needleleaf forest during the fall transition. *Remote Sensing of Environment*, *258*, 112362.

2019 **Kim, J.**, Ryu, Y., Jiang, C, Hwang, Y. (2019). Continuous observation of vegetation indices, fraction of absorbed photosynthetically active radiation, and leaf area index using an integrated low-cost near-surface remote sensing system. *Agricultural and Forest Meteorology*.

2018 Yang, K.**,** Ryu, Y.***,** Dechant, B**.**, Berry, J.A., Hwang, Y.**,** Jiang, C.**,** Kang, M., **Kim, J.,** Kimm, H.**,** Kornfeld, A., & Yang, X. (2018). Sun-induced chlorophyll fluorescence is more strongly related to absorbed light than to photosynthesis at half-hourly resolution in a rice paddy. *Remote Sensing of Environment*

Patents

2021 Ryu, Y., **Kim, J.,** (Jan 2021). Imaging system for monitoring SIF. Korea

2020 Ryu, Y., **Kim, J.,** Kim, J (June 2020). Spectroscopic sensor circuit for monitoring vegetation and smart spectroscopic sensor including thereof. Korea

2018 Ryu, Y., **Kim, J.** (November, 2018). Method for measuring chlorophyll fluorescence using band-pass filters. Korea

2018 Ryu, Y., **Kim, J.** (July, 2018). Filter-based solar-induced chlorophyll fluorescence observation sensor. Korea

2016 Ryu, Y., **Kim, J.**, Jiang, C. (October, 2016). A real-time monitoring system of canopy structure and functions. Korea

Journal Articles in Progress

2023 **Kim, J.,** Ryu, Y., & ... (2023). Monitoring spring phenology of a multi-layer canopy in a deciduous broadleaf forest: What signals do we actually see from space?

2023 Dark respiration explains considerable variation of nocturnal stomatal conductance in rice regardless of abiotic stress

2023 Jablonski, A., Li, R., **Kim, J.,** Lerdau, M., Petras, C., Yang, X (2023). Spatiotemporal patterns of canopy fluorescence yield, NDVI, leaf angle distribution, and foliar pigments, covary in a mixed temperate system. *Under review*

PRESENTATIONS (*Presenter)

Kim, J. (March 2022), Continuous Observation of Vegetation Phenology Dynamics using low-cost, Near-Surface Remote Sensing System. **Invited talk,** Global Hydrology and Water Resources Group, Virginia, USA.

Kim, J., Jablonski, A., Root, A., Benson, M., Beverly, D., Lerdau, M., Phillips, R., Novick, K., Yang, X (February 2023). The structural response of trees to drought stress is related to light partitioning. **Oral Section**, Enviroday, Virginia, USA.

Kim, J., Jablonski, A., Root, A., Benson, M., Beverly, D., Yi, K., Paudel, I., Lerdau, M., Dukes, J., Phillips, R., Novick, K., Yang, X (December 2022). The coordinated Physiological and Structural response of trees to water stress. **Poster Section,** American Geophysical Union (AGU), Chicago, USA.

Kim, J., (February 2022), Continuous Observation of Vegetation Phenology and Solar Induced Chlorophyll Fluorescence using low-cost sensing system, **Invited Talk**, Graduate School specialized in Climate Change Seminar, Suwon, South Korea.

Kim, J., Ryu, Y., Park, H., Jeong, S., Kang, M (December 2021). Monitoring spring phenology of multi-layer canopy in a deciduous broadleaf forest: What signal do we actually see from space? **Oral Section**, American Geophysical Union (AGU), San Francisco, USA.

Kim, J., Ryu, Y., Dechant, B., Lee, H., Kim, H., (December 2020). Mechanistic Insights on canopy photosynthesis estimation in a temperate evergreen needleleaf forest using sun-induced chlorophyll fluorescence and relevant vegetation indices, **Poster Section**, American Geophysical Union (AGU), San Francisco, USA.

Kim, J., Ryu, Y., Dechant, B., Lee, H., Kim, H., Berry, J., Kornfeld, A (December 2019). Linking continuous observations of leaf- and canopy-level chlorophyll fluorescence in an evergreen needleleaf forest, **Poster Section**, American Geophysical Union (AGU), San Francisco, USA.

Kim, J., Ryu, Y., Dechant., B. (April 2019). Can sun-induced chlorophyll fluorescence track variations of photosynthesis over the senescence period in an evergreen needle leaf forest?, **Poster Section**, European Geophysical Union (EGU), Vienna, Austria.

Kim, J., Ryu, Y., Dechant., B. (June 2018). Monitoring sun-induced chlorophyll fluorescence using a filter based near-surface remote sensing system, **Poster Section**, POSTDAM Greenhouse gas (GHG) flux workshop, Nanjing, China.

Kim, J., Ryu, Y., (June 2018). Monitoring sun-induced chlorophyll fluorescence using a filter based near-surface remote sensing system, **Oral Section**, Mer Bleue peatland science meeting, Montreal, Canada.

Kim, J., Ryu, Y., Dechant, B., Yang, K., Cho, S., Kim, H (December 2017). Can sun-induced chlorophyll fluorescence track diurnal variations of GPP over the senescence period in evergreen needle leaf forest? NDVI using a Smart Surface Sensing System (4S), **Poster Section**, American Geophysical Union (AGU), San Francisco, USA.

Kim, J., Hwang, Y., Jiang, C., Ryu, Y. (December 2016). Automatic monitoring of ecosystem structure and functions using integrated low-cost near surface sensors, **Poster Section**, American Geophysical Union (AGU), San Francisco, USA.

Kim, J., Hwang, Y., Jiang, C., Ryu, Y. (September 2016). Monitoring LAI, fPAR and NDVI using a Smart Surface Sensing System (4S), **Poster Section**, International Consortium of Landscape and Ecological Engineering (ICLEE), Seoul, Korea.

Kim, J., Hwang, Y., Jiang, C., Ryu, Y. (September 2016). Monitoring LAI, fPAR and NDVI using a Smart Surface Sensing System (4S), **Poster Section**, Integrated Carbon Observation System (ICOS), Helsinki, Finland.

Kim, J., Ryu, Y. (December 2015). Changes of NDVI across vertical canopy layers in temperate deciduous forest during a litterfall period, **Poster Section**, American Geophysical Union (AGU), San Francisco, USA.

RESEARCH ASSISTANT GRANTS

2017 – 2019	Salary and travel costs for the international conference from BK (Brain Korea) 21 Plus [$ 1,000 / mon]
2017 – 2018	International collaboration Travel Grant from BK (Brain Korea) 21 Plus, Département de géographie, Université de Montréal, Canada [$ 2,000]
2016	장순영 Schoarship, Seoul National University [$ 2,000]

TEACHING ASSISTANT

2016	Teaching Assistant, Urban park planning, Seoul National University
2015	Teaching Assistant, Ecological Analysis in Landscape Studies, Seoul National University

RESEARCH PROJECTS

2022-2023	The Coordinated Structural and Physiological responses of trees to water stress.
2021	Tracking forest photosynthesis using Korean satellite product.
2020	CCS (Carbon Dioxide Capture. & Storage) project
2020	Analysis of spatial and temporal variation in forest spectral characteristics.
2016 – 2019	Monitoring canopy photosynthesis through remote sensing of sun-induced chlorophyll fluorescence
2018 – 2019	Korea-Canada Project from National Research Foundation.
2016 – 2017	Remote sensing of spatial and temporal patterns in carbon and water fluxes across the arctic tundra region
2015 – 2017	Tracking vegetation phenology from leaf to regional scales with near-surface and satellite remote sensing. 150,000$ from National Research Foundation (X Project)
2014 – 2015	Center for Climate/Environment Change Prediction Research. (ERC)

PROGRAMMING AND SOFTWARE

MATLAB
Visual Basic
Python, Shell
LINUX
Google Earth Engine
SCENE

EXPERIMENTAL FACILITIES

Plant canopy analysis

LAI-2200, Digital cover photography, Light emitting diodes (LEDs), LiDAR (FARO, Leica)

Spectral data measurement

Light emitting diodes (LEDs)
Ocean Insight products (Jaz hyper-spectrometer, FLAME, QE Pro, HR2000)
Radiometer
ASD field spec, ASD

Gas exchange measurements

LI-6400, LI-6800, LI-600

Fluorometer

MONI-PAM, PAM2500, LI-600

Micro computer

Raspberry pi (Linux OS)

Micro controller

Arduino, Data logger (Campbell)

Hyperspectral imager

PiKaII (Resonon)

LICENSES

Driving (Korea / USA)

SkinSCUBA, master degree (SSI)

LANGUAGES

Korean

English

MEMBERSHIPS

2015 –	Member, American Geophysical Union (AGU)
2019 –	Member, European Geosciences Union (EGU)
2015 – 2016	Member, Engineering Research Center (ERC)

ACADEMIC SERVICE

Reviewed for Journals:

Remote sensing of Environment

Agricultural and Forest Meteorology