

## Acknowledgements

This Ph.D dissertation will be my last effort in University as a student. I would like to thank many people. I want to say thanks here to not only those related to my research, but also to those who I personally appreciate.

- First, I want to thank all of my committee members. Professor Duncan and Brandon gave me vision and instruction for my research as advisors. Professor Duncan gave me unlimited trust and support during my studies in Blacksburg. His passion and effort for Soil Mechanics was enormous. He is a great engineer and teacher, and I want to give him my deepest respect and thank. Professor Brandon was the first professor who gave me a research project at Virginia Tech. When I was first here, my English was terrible, and nobody knew me. One day, he gave me a job. Since then, he had been supporting me. I was really surprised when I attended his soil behavior class. Most of my laboratory knowledge comes from him. Professor Filz showed me how a person can be organized and neat. I think that I am an organized person, but it was nothing when I saw him. When I made the first contact to get admission to this department, he was generous in introducing me and providing me information. His foundation class was really neat and motivated my graduate study. Professor Gutierrez gave me thoughtful advice and encouragement. During the tunnel project, he gave me different experiences about rock mechanics and tunneling. It was a really fun and fresh experience. Professor Mitchell was co-advising me with Professor Brandon when I involved the calibration chamber project. Even he is retired, he joined my committee, and I thank him for his participation.
- Professor Kuppusamy is retired already. He gave me much advice when I had personal and academic problems. Professor SungJae Park and DuHoi Jung in Korea encouraged me to study at Virginia Tech. Professor Park gave me huge support during my master's degree in Korea. Professor Jung is like my big brother. I really appreciate his advice and courage.

- I also thank the sponsor of this research (U.S. Department of Interior Bureau of Reclamation). Jeffrey Farrar at the USBR gave me lots of information and support. I thank him for his support.
- During the five years in Virginia Tech, there were so many Ph.D. and M.S. students who graduated from here. I really want to thank them for their friendship; Jeremy Britton, Russell Green, Miguel Pando, Guney Olgun, Chris Baxter, Duane Bents, Jesse Jacobson, Mike Navin, Miriam Stewart, Chris Meehan, Randy Hickman, and Afonso Marques. I would like to thank Mario Wiechert, Andy Schwaiger, and Emily Stidworthy for directly helping for my research. Russell is a professor at University of Michigan, now. He gave me lots of courage when he was my office mate. Recently, Miguel had a baby with Sandra. Miguel gave me enormous friendship and support. Guney also had a baby with Selen. Guney and I defend our dissertation on the same day ("Thanks Guney for waiting me.")
- Thanks to Judy Dumin, Vickie Graham, Mary Ruth McDonald, Brett Farmer, Denson Graham, Sandy Simpkins, Clark Brown, and C. J. Smith in Civil and Environmental Engineering Department staff. Specially, C. J. gave me lots of advice and encouragement.
- I want to thank several Korean friends: SoonKie Nam, ImSoo Lee, SuWan Park, MyongHyun Kim, Hyun Shin, YuJin Park, Chul Park, Yuko Mizutani, ChanSun Jin, KyongHo Ahn, JungHwa Im, ChulHo Bang, etc.
- I want to thank my family in Korea. My parents (ByoungMan Park, JeonYee Cho) were supportive from the beginning. After I came here, they supported me even during the worst economy condition in South Korea. Usually in Korean custom, I should support my parents at my age. I am really sorry to my parents about it. Also, I could not imagine my finishing without my aunt (GumAk Cho). I want thank my parents-in-law (WhoiGap Kim and MalDuRi Kim), also. I also thank my older sister, KyongHee Park.
- Finally, I want to thank my wife (MeeOk Kim). I know I am a stubborn guy. Because of that, I gave her so many difficult times. Her support and encouragement gave me enormous energy to work and study. I truly thank and love you. My son, Sean Park (JinHyong Park) is still four years old. He may not remember these days when he is grown up. I am sorry that I did not play with you more. I love you.

*To my MeeOk and Sean...*