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Military Transformations Program
S. Rajaratnam School of International Studies

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RESEARCH INTERESTS

- **Strategic Trends, Security Conceptions, and Military Modernization in East Asia**
Regional approaches to military modernization, and its implications for the medium to long-term stability of the geostrategic environment of the Asia Pacific;
- **Military Innovation & New Technologies: Theory, Processes, and Debate**
The impact of emerging disruptive technologies and new types of armaments on military transformation and modernization, particularly when it comes to new operational concept and new operating areas, especially in the maritime, air, and space domains;
- **Information & Cyber Conflicts**
Implications of cyber and information operations on doctrine, operational planning and strategy; Long-range trends and developments when it comes to future warfare;

HIGHER EDUCATION

- 2012 **Ph.D. Lee Kuan Yew School of Public Policy, National University of Singapore**
Dissertation: “*Searching for New Security Paradigms: Israel and South Korea’s Defense Transformation*”
Recipient of the NUS President’s Graduate Fellowship Award
- 2004 *Hebrew University of Jerusalem – Rothberg International School, Israel*
ISEP Research Student
- 2002 **M.A. International Studies**
Graduate School of International Studies, Yonsei University, Seoul, South Korea
M.A. Thesis: “Preparing for Infowar: Information Warfare and the U.S.-ROK Defense Strategies”
- 2000 **B.A. International Communications/International Studies**
Missouri Southern State University, USA
Summa cum Laude, Departmental Distinction

PUBLICATIONS

Books:

Creating Reverse Asymmetry: Military Innovation in Small States
(New York: Routledge, 2015).

Security, Strategy and Military Change in the 21st Century: Cross-Regional Perspectives
Jo Inge Bekkevold, Ian Bowers, and Michael Raska (eds.) (New York: Routledge, 2015).

Book Chapters:

“China’s Evolving Cyber Warfare Strategies,” Book Chapter, In: Char James and Richard Bitzinger (eds.) *Reshaping the People's Liberation Army since the 18th Party Congress: Politics, Policymaking and Professionalism* (London: Routledge, forthcoming 2017).

“Military Cyber Capabilities in the Asia-Pacific” In: International Institute for Strategic Studies, *The Asia-Pacific Regional Security Assessment 2017: Key Developments and Trends* (London: IISS Strategic Dossier, forthcoming 2017).

“South Korea’s Military Innovation Trajectories” In: Cronin, Patrick (ed.), *Breakthrough on the Peninsula: Third Offset Strategies and the Future Defense of Korea* (Washington D.C.: Center for New American Security, 2016).

“Diesel-Electric Submarine Modernization in Asia: The Role of Air-Independent Propulsion Systems” In: Bitzinger, Richard (ed.): *Emerging Critical Technologies and Security in the Asia-Pacific* (London: Palgrave Macmillan, 2016).

“Capacity for Innovation: Technological Drivers in China’s Future Military Modernization” Co-authored with Richard Bitzinger. In: Kamphausen, Roy and Lai, David (eds.) *The PLA in the 2025* (Washington D.C: The National Bureau of Asian Research, 2015).

“China’s Strategic Imprint on the Korean Peninsula: Crisis Scenarios and Implications for the US-ROK Alliance” In: Li, Mingjiang and Kemburi, Kalyan (eds.) *Contending for the Asia-Pacific: New Dynamics in US-China Relations* (London: Routledge, 2014).

“Locating China’s Place in Global Defense Economy” Co-authored with Richard Bitzinger, Collin Koh, and Kelvin Wong. In: Cheung, Tai Ming (ed.) *Forging China’s Military Might: A New Framework for Assessing Innovation* (Baltimore: Johns Hopkins University Press, 2013).

Journal Articles:

“RMA Diffusion Paths and Patterns in South Korea’s Military Modernization.” *Korean Journal of Defense Analysis* (23)3: 369-385.

“Five Waves of RMA Theory.” *Pointer - Journal of Singapore Armed Forces* (36)3-4: 1-12.

“Beyond the Bomb in the Basement: Israel’s Nuclear Predicament & Policy Options” *Asian Journal of Public Affairs* (1): 2:22-33.

Book Review: “Rebalancing US Forces: Basing and Forward Presence in the Asia-Pacific.” *Contemporary Southeast Asia* (37)1: 146–49.

Current Working Papers:

“The Third Offset Strategy and Future of U.S. Power Projection in East Asia,” *Book Proposal*.

Policy Reports:

“Countering the U.S. Third Offset Strategy: Russian Perspectives, Responses, and Challenges.”
Co-authored with Vasily Kashin. *RSIS Policy Report* (January 2017).

“Confronting Cybersecurity Challenges: Israel’s Cyber Concepts Strategies, and Debates.”
RSIS Policy Report (January 2015).

“Submarine Modernization in East Asia: Competitive Strategies.”
RUSI Newsbrief. (Vol. 34, No.5, October 2014).

“Rethinking Information and Cyberwarfare: Global Perspectives and Strategic Insights” *RSIS Conference Report* (May 2014).

“The Air-Sea Battle Debate and the Future of Conflict in East Asia” Co-authored with Richard Bitzinger. *RSIS Policy Brief* (February 2013).

“China’s Military Aviation Industry: In Search of Innovation” In: Cheung, Tai Ming (ed.) *The Chinese Defense Economy Policy Briefs: Sector-by-Sector Assessments and the Role of Military End Users*. (San Diego: UC Institute on Global Conflict and Cooperation, 2013).

“The Concept of Reverse Asymmetry: Israel’s Military Innovation”
RUSI Newsbrief (Vol. 33, No. 1, January 2013).

“The Air-Sea Battle Debate”
RUSI Newsbrief (Vol. 32, No. 6, November 2012).

Select RSIS Policy Commentaries:

“Cyber Conflicts and Singapore’s ‘Total Defense’ Strategy”
RSIS Commentary (156/2016).

“Tailored Deterrence: Influencing North Korean Decision-Making”
RSIS Commentary (093/2016).

“The Real Star Wars: Improving Satellite Defenses”
RSIS Commentary (032/2016).

“Cyber-Enabled Hybrid Conflicts in East Asia”
RSIS Commentary (172/2015).

“Russia’s Concept of Hybrid Wars: Implications for Singapore” [with Richard Bitzinger]
RSIS Commentary (091/2015).

“Decoding China’s Cyber Warfare Strategies”
RSIS Commentary (045/2015).

“Back to the Future: China’s Defense Industry in 2030”
RSIS Commentary (229/2014).

“Building a Cyber Iron Dome: Israel’s Cyber Defensive Envelope”
RSIS Commentary (192/2014).

“Toward Stealth and Sea Denial: Submarine Modernization in East Asia”
RSIS Commentary (130/2014).

“China’s Defense Aviation Industry on the Horizon?”
RSIS Commentary (030/2014).

“East Asia’s Changing Security Dynamics and the Role of Airpower”
RSIS Commentary (026/2014).

External Briefs / Strategic Analysis:

“How China Plans to Win the Next Great Big War in Asia”
The National Interest (March 9, 2017).

“Strategy for handling North Korea Nukes: Tailored Deterrence”
Asia Times (January 13, 2017).

“Challenges ahead in Xi’s bid to Reform China’s Military”
Asia Times (January 11, 2017).

“Rethinking Trump's Policy for North Korea” [with Jana Hajzlerova]
Asia Times (December 21, 2016)

“Where Quantum Satellites fit in PLA Strategy”
The Lowy Interpreter (September 8, 2016).

“PLA Reforms: Toward Winning Informationized Local Wars”
The Lowy Interpreter (February 3, 2016).

“China and the Three Warfares”
The Diplomat (December 18, 2015).

“The New Battleground in China's Future Wars”
The National Interest (March 10, 2015).

“Submarine Modernization in East Asia”
The Diplomat (July 7, 2014).

“Singapore's Smart Army”
East Asia Forum (May 1, 2014).

“East Asia’s Changing Security Dynamics and the Role of Airpower”
Defense News (February 3, 2014).

“Scientific Innovation and Chinese Military Modernization”
The Diplomat (September 3, 2013).

“China’s Defense Aviation Industry: Toward Stealth Innovation?”
East Asia Forum (March 10, 2013).

“Information Warfare on the Korean Peninsula”
ASPI Strategist (March 13, 2013).

“China’s Defense Aviation Industry: Toward Stealth Innovation?”
Co-authored with Alanna Krolikowski. *East Asia Forum* (March 11, 2013).

“South Korea’s Changing Security Paradigm”
Project Syndicate (February 10, 2013).

“Transforming South Korea’s Defense Capabilities”
East Asia Forum (May 28, 2012).

“Tackling North Korea’s Missile Quest”
The Diplomat (April 7, 2012).

Select Newspaper Op-eds:

“Czech’s China Dilemma”
Lidove Noviny, Prague (March 31, 2016).

“Cybersecurity: The Israeli Experience”
The Straits Times (June 24, 2015).

“Israel’s Cyber Iron Dome”
The Korea Herald (October 8, 2014).

“Submarines Grow in Strategic Importance for Regional Navies”
Today (August 14, 2014).

“Strategic Rivalries Escalate in East Asia”
The Korea Herald (April 28, 2014).

“Australia’s Evolving ‘Smart Power’ Strategy”
The Jakarta Post (June 7, 2013).

“The Ambiguous China Threat”
Project Syndicate (Nov. 24, 2012).

“Decoding the Air-Sea Battle: Operational Consequences and Allied Concerns”
Defense News (Oct. 29, 2012).

“China’s strategy puts U.S. in dilemma on Korean Peninsula”
The Korea Herald (July 12, 2012).

“China on the Launch Pad”
Project Syndicate (June 6, 2012).

TEACHING EXPERIENCE

2013-17 **S. Rajaratnam School of International Studies, Nanyang Technological University**
MSc Course: "Conflicts in the Digital Age: Information Conflicts & Cyber Operations"
Avg. Student Ratings: 4.4 (out of 5.0)

Singapore Armed Forces, GKS Command and Staff College
"Campaign and War Studies Course - Executive" (Syndicate Lecturer)

2012 **Singapore Armed Forces, GKS Command and Staff College**
"Campaign and War Studies Course" (CWS)
"Air Force Advanced Course" (AFAC)
"Officer Cadet Course" (OCC)

2008-11 **Lee Kuan Yew School of Public Policy, National University of Singapore**
"International Security: Concepts, Issues, Policies"
"Politics & Public Policy" (Teaching Assistant)
"Politics & Policy in Southeast Asia" (Teaching Assistant)
"International Relations & Diplomacy" (Teaching Assistant)

RESEARCH EXPERIENCE

2017 Selected as a participant in the *Young Strategists Forum* by the German Marshall Fund of the United States, Tokyo, January 26-31, 2017.

2016 Research Interviews: *"Strategic Environment and Future of Conflict - Israel's Perspectives,"* Tel Aviv (Israel Defense Forces (IDF) Strategic Planning Office; Institute for National Security Studies (INSS); Interdisciplinary Center (IDC) Herzliya; Begin-Sadat Center for Strategic Studies (BESA); Haifa Research Center for Maritime Strategy).

Research Interviews: *"The U.S. Third Offset Strategy,"* Washington D.C. (Center for New American Security (CNAS); Center for Strategic and Budgetary Analysis (CSBA); Center for Strategic and International Studies (CSIS); National Defense University (NDU); National Intelligence University (NIU); RAND).

2015 Selected as a participant in the *Opinion Leaders Program* by the Japan Ministry of Defense, Tokyo, March 23-26, 2015.

Research Interviews: *"China's Military Modernization,"* Washington D.C. (RAND; National Defense University; Center for New American Security; New America Foundation; Pacific Forum CSIS; Special Operations Command – Pacific Command).

2014 Selected as a participant in the *Hertog Summer Study Program* by the Philip Merrill Center for Strategic Studies (Prof. Thomas Mahnken/SAIS), San Diego, CA, USA.

Research Interviews: *"Technology and Future of Warfare,"* Tel Aviv (Interdisciplinary Center Herzliya; Tel Aviv University; Institute for National Security Studies; Israel Defense Forces).

- 2013 Selected as a participant in the *Summer Workshop on the Relationship between National Security and Technology in China* by the Institute on Global Conflict and Cooperation, University of California, San Diego, CA, USA.
- Selected as a participant in the *Philip Merrill Center for Strategic Studies Basin Harbor Teaching Seminar*, The Paul H. Nitze School of Advanced International Studies (SAIS), The Johns Hopkins University.
- 2012 Selected as a participant in the *Summer Workshop on Military Operations and Strategy (SWAMOS)*, Columbia / Cornell University.
- 2009 *PhD Fieldwork in Israel* (Interviews at the National Security Council; IDF Dado Center for Interdisciplinary Military Studies; Institute for National Security Studies; Harold Hartog School of Policy and Government; Hebrew University of Jerusalem).
- 2008 *PhD Fieldwork in South Korea* (Interviews at the Ministry of National Defense; Korea Military Academy; Korea Institute for Defense Analyses; Yonsei University).
- 2005-06 *Samsung Economic Research Institute*, Center for Global Cooperation, Seoul, Korea
Research Associate
- 2004-05 *Hebrew University of Jerusalem*, Rothberg International School, Jerusalem
Visiting Research Student
- 2003 *Pacific Forum, Center for Strategic and International Studies*, Honolulu
Visiting Research Fellow, CSIS Young Leaders Program

SELECTED CONFERENCES AND PRESENTATIONS

- 2017 “The Fourth Industrial Revolution and its Impact on Defense and Security”
Australian Strategic Policy Institute, Canberra, Australia (February 22).
- 2016 “Cyber-Kinetic Conflicts in East Asia: Cross-Domain Strategic Interactions”
International Society of Military Sciences, Warsaw, Poland (October 13).
- “Military Innovation and Strategic Thought in Russia, China, and the U.S.”
RSIS-TDSI Seminar, Disruptive Defense Technologies in Military Operations, Singapore, (June 29).
- “Third Offset Strategies and the Future Defense of Korea”
CNAS Panel Discussion, Washington D.C., USA (November 21).
- 2015 “Is China a Threat to the World Order or Guarantor of Stability?”
Public Lecture, CEVRO Institute, Prague, Czech Republic (November 3).
- “Geostrategic Transformation and Military Modernization in East Asia”
Goh Keng Swee SAF Command and Staff College Seminar 2015, Singapore, (October 8-9).
- “Cyber Conflicts in East Asia”
The Asan Institute for Policy Studies, ASAN Plenum, Seoul, South Korea (April 29).

- “Future High Technology Weaponry in East Asia”
East Asia Security Outlook Seminar, Sultan Haji Hassanal Bolkiah Institute of Defense and Strategic Studies, Brunei Darussalam (March 5).
- 2014 “Civil-Military Relations in Cyberspace”
RSIS-Leiden University CTC Roundtable, Singapore (November 18).
- “Back to the Future: China’s Defense Industry in 2030”
RSIS Workshop on the Future Global Defense Industries, Singapore (November 10).
- “Decoding China’s Cyberwarfare Concepts, Strategies, and Debates”
International Society of Military Sciences, Vienna, Austria (October 23).
- “Cybersecurity Policy in China”
The 4th Annual International Cybersecurity Conference, Tel Aviv, Israel (September 16).
- “Capacity for Innovation: Technological Drivers of China’s Future Military Modernization”
Co- authored with Richard Bitzinger. Paper presented at a conference “*The PLA in the 2025*” organized by the National Bureau of Asian Research (NBR) and the Strategic Studies Institute (SSI), Carlisle, US Army War College (February 22).
- “East Asia's Security in Transition: Implications for Defense Industry”
Presentation for *Raytheon Asia*, Singapore, February 10, 2014.
Presentation for the *Saab Group Asia*, Bangkok (January 29).
- “Decoding China’s Cyberwarfare: Perceptions, Strategies, and Capabilities”
Presentation for the Lithuanian Government, Vilnius (January 23).
- 2013 “Debating Military Innovation: Conceptual Approaches”
Norwegian Institute for Defense Studies (IFS), Oslo (December 5).
International Society for Military Sciences (ISMS), Copenhagen (November 14).
- “South Korea’s Changing Security Paradigm”
ROK Ministry of Foreign Affairs Delegation, Singapore (September 25).
- “Warfare in New Domains: Understanding Information Warfare 3.0”
Annual Program for Senior Military Officers – APPSMO, Singapore (August 7).
- “A Divided Peninsula: Confronting North Korea's Asymmetric Security Challenges on the Peninsula and beyond” Swedish Defense Attaches Conference, Singapore (May 30).
- “10th International Security Forum (ISF)
Geneva, Switzerland (April 22).
- 2012 “The Air-Sea Battle Debate and Asia’s Strategic Futures”
Canadian Forces College (CFC), Toronto, Canada (October 26).
- “From Copier to Innovator? China’s Ballistic Missile Modernization”
International Society of Military Sciences (ISMS), Royal Military College of Canada, Kingston (October 23-24).

SELECT MEDIA APPEARANCES & NEWS INTERVIEWS

- 2017 “China's Push to Become a Tech Superpower Triggers Alarms” *Financial Times* (March 19).
“Chinese Defense Spending Stokes Concern, Debate” *The Japan Times* (March 13).
“China Fumes as US, S. Korea speed up Thaad Deployment” *The Straits Times* (March 7).
“Russia's Master Plan to Crush the Third Offset Strategy” *The National Interest* (January 24).
“North Korea offers up Challenge for Trump” *Shephard Media* (January 11).
- 2016 “China returns US underwater drone seized in South China Sea” *AP News* (December 20).
“Digitaler Weltkrieg” *Die Welt*, Germany, (December 17).
“Quantenphysik: Die Peking-Connection” *Die Zeit*. Austria (October 3).
“Quest for Independence: China to Make its own Jet Engines” *CS Monitor* (August 29).
“Warum Kim Seine Atombomben Mehr Denn je Braucht” *Die Welt*, Germany, (June 6).
“Diplomatic Quandary Looms over South China Sea Dispute” *Yonhap News* (May 10).
“Xi Jinping Gains a New Title: Commander in Chief” *The New York Times* (April 21).
“Why Japan Faces Pressure to Return to Military Research” *The Stack* (March 8).
“South Korea divided over THAAD” *Yonhap News* (February 10).
“Nnot Top Gun yet: China struggles with warplane engine technology” *Reuters* (January 28).
“Wie Nordkorea sein Atomprogramm finanziert” *SRF News, Swiss TV* (January 9).
“Das große Beben” *Die Welt*, Germany (January 7).
“NK nuclear bomb test a threat to peace and security” *Sydney Morning Herald* (January 6).
- 2015 “Hard slog whipping the PLA into shape” *The Straits Times* (September 9).
“Message of ‘peace’ amid display of power” *The Straits Times* (September 3).
“Bastelt Kim schon wieder heimlich an der Atombombe?” *Die Welt*, Germany, (August 13).
“NK: The problem child of Asia refuses to learn” *Sydney Morning Herald* (June 21).
“China’s military shows growing confidence” *The Straits Times* (May 28).
“Kims Eliteeinheit 121 ist Nordkoreas gefährlichste Waffe” *Die Welt*, Germany (May 19).
“Questions raised over rotational U.S. forces” *The Korea Herald* (April 14).
“Politicization of Security Hinders Strategic Thinking” *The Korea Herald* (March 17).
“Wie das mysteriöse ‘Büro 39’ Kims Macht sichert” *Die Welt am Sonntag* (March 16).
“Malaysia Airlines Website Hacked” *BBC World News* (January 27).
- 2014 “China’s New Island Prompts Fresh Geopolitical Fears” *CNBC News* (November 25, 2014).
“South Korea Faces Tough Decision on THAAD” *The Korea Herald* (November 7).
“Aboard the USS Michigan” *CNBC News* (August 17).
“Experts: China Still Lags West in Advanced Aircraft Technologies” *Defense News* (August 3).
“N. Korea Bolsters Cyberwarfare Capabilities” *The Korea Herald* (July 27).
“Concerns Arise over Militarization of Cyberspace” *The Korea Herald* (July 14).
“The Crash of MH 17” *Channel News Asia* (July 22).
“Korea Vulnerable to Cyberwarfare” *The Korea Herald* (July 7).
“Das Geheimnis von Flug MH370” *ZDF Heute* (April 8).
- 2013 “North Korea Puts Army on Alert” *CNBC News* (October 8, 2013).
“China Pursues Systems to Keep US Forces at Bay” *Defense News* (September 17).
“Will China's Aviation Industry Steal U.S. Thunder?” *Defense News* (July 21).
“North Korea Could Be Recalculating Moves” *CNBC News* (April 15, 2013).
“NATO Secretary General Rasmussen’s Visit to South Korea” *BBC World News* (April 11).
“Tensions between North and South Korea Flare” *ABC News 24* (March 31).

HONORS AND AWARDS

- 2012 Research Grant, SITC Project, Institute on Global Conflict and Cooperation (San Diego)
- 2009 Research Grant, LKY SPP, National University of Singapore
- 2007 President's Graduate Fellowship Award, National University of Singapore
- 2004 Research Grant, Rothberg International School (Jerusalem) – GSIS Yonsei University (Seoul)
- 2003 Hwa-Am Fellowship, GSIS Yonsei University (Seoul)

Awarded for outstanding academic achievement and strong interest in international relations:

- 2000 *Missouri Southern State University:*
 - International Communications Student of the Year
 - National Honor Society (Alpha Chi)
 - National Dean's List
 - Phi Beta Kappa

PROFESSIONAL ACTIVITIES AND AFFILIATIONS

- Reviewer: *The Journal of Strategic Studies* (since 2016)
- Reviewer: *Defense Studies* (since 2017)
- Editorial Board Member, *Defense and Strategy Journal* (since 2016)
- Advisor – SAF Future Systems & Technology Directorate (since 2012)
- Pacific Forum CSIS, Young Leaders Program (since 2003)
- International Society for Military Sciences (since 2011)

RELATED SKILLS

Languages:

- Fluent: English, German, Czech
- Intermediate: Spanish
- Beginner: Korean, Japanese, Hebrew

Interpersonal and intercultural competence:

Lived in six countries: Czech Republic, Germany, USA, South Korea, Israel, and Singapore;

International media experience;

REFERENCES

Academic and professional references are available upon request.

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