List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
1. Principles of Informatics Research Division									
1	Artificial Intelligence / Web Informatics	Semantic Web / Linked Data / Linked Open Data	http://lod.ac http://www-kasm.nii.ac.jp/	Hideaki Takeda	Professor	Master's or PhD students	3	3-6months	
2	Artificial Intelligence / Web Informatics	Social Web / Social Media Analysis / Social Network Analysis	http://www-kasm.nii.ac.jp/	Hideaki Takeda	Professor	Master's or PhD students		3-6months	
3	Artificial Intelligence	Artificial Social Intelligence: building intelligence systems with social knowledge and social interaction		Hideaki Takeda	Professor	Master's or PhD students		3-6months	
4	Artificial Intelligence	Ethics on Artificial Intelligence		Hideaki Takeda	Professor	Master's or PhD students		3-6months	
5	Theoretical Computer Science & Data Mining	Designing, analyzing, and implementing algorithms with low average sensitivity	https://arxiv.org/abs/1904.03248	Yuichi Yoshida	Associate Professor	PhD students	2	Up to 6 months	The work mentioned was done with a former intern student.
6	Theoretical Computer Science & Machine Learning	Submodular function optimization	https://arxiv.org/abs/1708.08781 https://arxiv.org/abs/1503.01218	Yuichi Yoshida	Associate Professor	PhD students		Up to 6 months	
7	Theoretical Computer Science	Sublinear-time algorithms on real data	https://arxiv.org/abs/1806.10626	Yuichi Yoshida	Associate Professor	PhD students		Up to 6 months	The work mentioned was done with a former intern student.
8	Web & Social Media analysis, Time series analysis	Modeling human activity through mining social time series	http://research.nii.ac.jp/~r-koba/en/index.html	Ryota Kobayashi	Assistant Professor	PhD students	2	3-6 months	We will develop a toolbox for Web datamining. Basic knowledge about Probability and Statistics are necessary. Machine learning and/or natural language processing techniques is appreciated. See papers in my website for details (Aoki et al., 2016; Kobayashi & Lamboitte 2016).
9	Time series analysis, Artificial Neural Networks	Deep time series analysis	http://research.nii.ac.jp/~r-koba/en/index.html	Ryota Kobayashi	Assistant Professor	PhD students		3-6 months	We will apply Variational Auto Encoder (VAE) or LSTM for time-seris analysis. Basic knowledge or interest in differential equations is appreciated.
10	Quantum computation and communication	Computer architecture for quantum information processing	http://www.qis.ex.nii.ac.jp/	Kae Nemoto	Professor	Master's or PhD students	3	2-6 months	
11	Quantum computation and communication	Quantum devices	http://www.qis.ex.nii.ac.jp/	Kae Nemoto	Professor	Master's or PhD students		2-6 months	
12	Quantum systems	Analyses of large-scale quantum systems		Kae Nemoto	Professor	PhD students		2-6 months	
13	Software verification	Separation logic	http://research.nii.ac.jp/~tatsuta/index-e.html	Makoto Tatsuta	Professor	Master's or PhD students	2	2-6 months	
14	Machine learning	Machine learning and information geometry	https://mahito.nii.ac.jp	Mahito Sugiyama	Associate Professor	PhD students	2	6 months	

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
15	Machine learning	Machine learning with discrete structure	https://mahito.nii.ac.jp	Mahito Sugiyama	Associate Professor	PhD students		6 months	
16	Airtificial Intelligence	Advanced Driving Assistance Systems	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students	3	3 to 6 months	
17	Airtificial Intelligence	Machine Learnining for Knowledge Graph / Graph Data	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students		3 to 6 months	
18	Airtificial Intelligence	Stream Reasoning	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students		3 to 6 months	
19	Airtificial Intelligence	Ontology Matching / Learning	http://ri-www.nii.ac.jp/	Ryutaro Ichise	Associate Professor	Master's or PhD students		3 to 6 months	
20	AI and Law	NLP for Legal Documents		Ken Satoh	Professor	PhD students	2	3 months	Knowledge of NLP is required
21	AI and Law	Legal Reasoning		Ken Satoh	Professor	PhD students		3 months	Knowledge of Reasoning is required
22	Knowledge Representation and Reasoning	Tensor-Based Automated Reasoning	http://research.nii.ac.jp/il/	Katsumi Inoue	Professor	Master's or PhD students	3	3-6 months	Basic knowledge of AI, linear algebra, deductive/abductive/inductive reasoning (or SAT/ASP solving) and GPU computing are required. Experience in C++, CUDA, Octave, OpenCL or Python is useful. Contact Prof. Inoue in advance.
23	Knowledge Representation and Reasoning	Integration of Knowledge Representation and Machine Learning	http://research.nii.ac.jp/il/	Katsumi Inoue	Professor	Master's or PhD students		3-6 months	Knowledge in KR, logics, ASP, abduction, ILP and/or belief change as well as machine learning or representation learning are advantageous to tackle this subject. Contact Prof. Inoue in advance.
24	Machine Learning	Learning Relational Dynamics from State Transition	http://research.nii.ac.jp/il/	Katsumi Inoue	Professor	Master's or PhD students		3-6 months	Basic knowledge of machine learning and/or inductive logic programming are required. Additionally, knowledge in planning, model checking, Cellular Autmata or Boolean networks is useful. Contact Prof. Inoue in advance.
25	Numerical Linear Algebra and Optimization	Application of inner-iteration preconditioned Krylov subspace methods to the primal-dual interior point solvers of semi definite programming or quadratic programming	https://doi.org/10.1007/s10589-019-00103-y	Ken Hayami	Professor	Master's or PhD students	2	6 months	Basic knowledge of numerical linear algebra and programming requiared.
26	Inverse Problem	Application of the Cluster Gauss Newton method to Pharmakokinetic models and neuron models, and its improvement.	https://arxiv.org/abs/1808.06714v2	Ken Hayami	Professor	Master's or PhD students		6 months	Basic knowledge of numerical analysis and programming requiared.
27	Intelligent Robotics	Human-Robot Interaction in Virtual/Augmented Reality	http://www.iir.nii.ac.jp/lab/research-e/sigverse/	Tetsunari Inamura	Associate Professor	Master's or PhD students	3	3-6 months	
28	Cognitive Science	Research on sense of agency and sense of ownership using virtual reality	http://www.iir.nii.ac.jp/lab/research-e/neurorehabilitation/	Tetsunari Inamura	Associate Professor	Master's or PhD students		3-6 months	

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
2. Information Systems Architecture Science Research Division									
29	Theoretical Computer Science	Automata-Theoretic Techniques in Formal Verification	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students	5	6 months (or shorter)	Our focus will be on quantiative modeling and verification (probabilistic, weighted, timed, etc.). Desired: solid backgrounds in logic, automata and formal languages
30	Software Science	Machine Learning Techiniques Applied to Search-Based Testing	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	Search-based testing of cyber-physical systems (also called "falsification") is attracting attention as a practical quality-assurance technique. It nicely combines formal methods and machine learning on the theoretical sides; on the implementation side there are many interesting challenges, too.
31	Software Science/Control Engineering	Optimization-Based Synthesis of Lyapunov Functions and Other Correctness Certificates	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	Correctness certificates for various systems and specifications (Lyapunov functions, ranking functions, invariants, etc.) sometimes allow efficient numeric search via convex optimization algorithms. This is also where software science and control engineering meet.
32	Theoretical Computer Science	Categorical Modeling of Verification Techniques	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	Various verification techniques allow abstraction by the language of category theory (especially coalgebras). This sometimes aids generalization and transition from qualitative to quantitative. Desired: familiarity with basic category theory.
33	Software Science	Analysis of Probabilistic Programs	http://group-mmm.org/eratommsd/about.html	Ichiro Hasuo	Associate Professor	Master's or PhD students		6 months (or shorter)	We use the combination of programming language theory, formal methods and probability theory, in order to devise novel analysis methods for probabilistic programs. Concrete examples include the following: Martingale-based termination analysis, sequential and Markov chain Monte Carlo methods, etc.
34	Programming languages	Type systems for computational effects		Taro Sekiyama	Assistant Professor	Master's or PhD students	3	2-6 months	
35	Programming languages	Type systems for gradual typing		Taro Sekiyama	Assistant Professor	Master's or PhD students		2-6 months	
36	Machine Learning and Automated Theorem Proving	Automated theorem proving with machine learning		Taro Sekiyama	Assistant Professor	Master's or PhD students		2-6 months	
37	Mobile Computing	Mobile Edge Computing	http://klab.nii.ac.jp/	Yusheng Ji	Professor	Master's or PhD students	3	3 to 6 months	

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
38	Wireless Communication	Connected Vehicles	http://klab.nii.ac.jp/	Yusheng Ji	Professor	Master's or PhD students		3 to 6 months	
39	Networking	AI/ML for Networking	http://klab.nii.ac.jp/	Yusheng Ji	Professor	Master's or PhD students		3 to 6 months	
40	Wireless and Mobile Communication Networks, Signal Processing, Machine Learning	(Deep) learning techniques for optimizing beyond 5G wireless communications	http://www.nii.ac.jp/en/faculty/architecture/kaneko_megumi/	Megumi Kaneko	Associate Professor	Master's or PhD students	3	5–6 months	Required programming skills: Matlab. Basic knowledge wireless/digital communications and signal processing is required.
41	IoT Wireless Communication Networks, Signal Processing, Machine Learning	Energy efficiency optimization and energy harvesting for IoT wireless networks (LPWAN, LoRa, etc.)	http://www.nii.ac.jp/en/faculty/architecture/kaneko_megumi/	Megumi Kaneko	Associate Professor	Master's or PhD students		5–6 months	Required programming skills: Matlab. Basic knowledge wireless/digital communications and signal processing is required.
42	Wireless and Mobile Communication Networks, Signal Processing	Integrated terrestrial and spatial wireless communications for beyond 5G and 6G	http://www.nii.ac.jp/en/faculty/architecture/kaneko_megumi/	Megumi Kaneko	Associate Professor	Master's or PhD students		5–6 months	Required programming skills: Matlab. Basic knowledge wireless/digital communications and signal processing is required.
43	Hardware Design	Hardware Implementation of Spiking Neural Networks	http://www.nii.ac.jp/en/faculty/architecture/yoneda_tomohiro/	Tomohiro Yoneda	Professor	Master's or PhD students	2	6 months	
44	Software Engineering, Machine Learning, Testing, Artificial Intelligence	Testing and Quality Analysis of Machihne Learning Systems	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students	5	2–6 months	
45	Cyber–Physical Systems, Software Engineering, Testing, Optimization	Intelligent Automated Testing for Cyber–Physical Systems	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students		2–6 months	
46	Formal Methods, Software Engineering, Cyber–Physical Systems	Refinement–based Modeling and Verification of Smart Cyber–Physical Systems	http://research.nii.ac.jp/~f-ishikawa/en/lab.html	Fuyuki Ishikawa	Associate Professor	Master's or PhD students		2–6 months	
47	Computer network	Network traffic visualization	http://www.fukuda-lab.org/internship	Kensuke Fukuda	Associate Professor	Master's or PhD students	3	5–6 months	Solid programming skill (python or javascript)
48	Computer network	Network security measurement and analysis	http://www.fukuda-lab.org/internship	Kensuke Fukuda	Associate Professor	Master's or PhD students		5–6 months	Solid programming (python or C++) and machine learning skills
49	Computer network	System log causality analysis	http://www.fukuda-lab.org/internship	Kensuke Fukuda	Associate Professor	Master's or PhD students		5–6 months	Solid programming (python) and machine learning skills

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
3. Digital Content and Media Sciences Research Division									
50	Traditional Geometric Computer Vision	3D Reconstruction for Large-Scale Image Collections; 3D Scan Using Mobile Devices; Underwater 3D Reconstruction; 3D from Event Cameras	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Associate Professor	Master's or PhD students	5	2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us.
51	Data-Driven Geometric Computer Vision	Deep Learning for 3D Capture, Point Cloud Denosing, Surface Completion, CAD Model Extraction and Realistic Rendering	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Associate Professor	Master's or PhD students		2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us.
52	Traditional Photometric Computer Vision	Multispectral and Hyperspectral Imaging System; Spectral Image Denosing and Superresolution; Intrinsic Images; Polarizing Imaging; ToF Imaging, Photoacoustic Imaging	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Associate Professor	Master's or PhD students		2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us.
53	Data-Driven Photometric Computer Vision	Deep Learning for Image Enhancement, Colorization, Style Transfer; Data-Driven Optimal Camera Design for Object Detection and Recognition	http://researchmap.jp/yinqiangzheng	Yinqiang Zheng	Associate Professor	Master's or PhD students		2-6 months	Students aiming at top conferences (ICCV, CVPR, ECCV) and journals (PAMI, IJCV) are encouraged to join us.
54	Computer vision	One of the following topics: (1) 3D vision, (2) Human activitiy recognition, (3) Gaze sensing and navigation, (4) Object segmentation from video using deep learning, and (5) Image/video generation using deep learning	http://www.dgcv.nii.ac.jp	Akihiro Sugimoto	Professor	Master's or PhD students	5	Up to 6 months (at least 3 months; a longer period is better)	Rigorous background on mathematics is required. Strong programming skills on image processing and computer vision are also required. In the case of Master course students, highly motivated students who can stay for 6 months are preferable. Students who are willing to pursuit ph D at NII are preferable as well. Potential applicants should send your CV and research interests/proposals directly to Prof. Sugimoto before your application.
55	Digital geometry	(1) Discretization model of geometric shape, (2) Discrete shape fitting to noisy integer points.	http://www.dgcv.nii.ac.jp	Akihiro Sugimoto	Professor	Master's or PhD students		Up to 6 months (at least 3 months)	Rigorous background on mathematics as well as computer vision is required. In particular, sufficient knowledge of linear algebra, graph theory and number theory are important requirements. Programming skills on image processing or computer vision are also required. Potential applicants should send your CV and research interests/proposals directly to Prof. Sugimoto before your application.
56	Data Science	Cooking Recipe Execution Plan Generation and Optimisation.	http://tiny.cc/nqlkaz	Frederic ANDRES	Associate Professor	Master's or PhD students	6	up to 180 days	in collaboration with the CRWB project and DÉCOR workshop
57	Data Science	Learning-based service of CO2-Footprint and nutrition calculator of cooking recipes	http://tiny.cc/rulkaz	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 180 days	in collaboration with IRISA
58	Social Media	Enhancing Dish Tasting Sharing Apps using Artificial Intelligence for Mobile	http://tiny.cc/3jmkaz	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 180 days	in collaboration with the Flavorlens project
59	Social Media	Fuzzy Approach-based Community Discovery in Flavorlens	http://tiny.cc/fnmkaz	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 180 days	in collaboration with the Flavorlens project
60	Education Science	Web Real-Time Communication server for WebELS Higher education learning system	http://tiny.cc/spmkaz	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 180 days	In collaboration with ISO SC36 standardisation committee

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
61	Data Science	Deep Learning-based Water Crystals Classfication	http://tiny.cc/usmkaz	Frederic ANDRES	Associate Professor	Master's or PhD students		up to 180 days	in collaboration with the EMOTO PEACE PROJECT and their EPP Dataset
62	Content-based image and video analysis	Video and image search (esp. TRECVID AVS task. see: http://www-nlpir.nist.gov/projects/trecvid/)	http://www.satoh-lab.nii.ac.jp/	Shin'ichi Satoh	Professor	Master's or PhD students	3	more than 90 days	
63	Content-based image and video analysis	Identification of specific object in video and image (esp. TRECVID instance search. see: http://www-nlpir.nist.gov/projects/trecvid/)	http://www.satoh-lab.nii.ac.jp/	Shin'ichi Satoh	Professor	Master's or PhD students		more than 90 days	
64	Content-based image and video analysis	Video Event Analysis (esp. TRECVID SMKBP or ActEv task. see: http://www-nlpir.nist.gov/projects/trecvid/)	http://www.satoh-lab.nii.ac.jp/	Shin'ichi Satoh	Professor	Master's or PhD students		more than 90 days	
65	Content-based image and video analysis	Image and Video Captioning (esp. TRECVID Video-to-Text pilot task or Microsoft Video to Language Challenge: see http://ms-multimedia-challenge.com/challenge)	http://www.satoh-lab.nii.ac.jp/	Shin'ichi Satoh	Professor	Master's or PhD students		more than 90 days	
66	Text Media	Language technologies to assist human reading/writing	http://www-al.nii.ac.jp	Akiko Aizawa	Professor	Master's or PhD students	3	3-6 months (6 month is preferable)	
67	Text Media	Deep analysis of scientific papers	http://www-al.nii.ac.jp	Akiko Aizawa	Professor	Master's or PhD students		3-6 months (6 month is preferable)	
68	Text Media	Machine reading comprehension and grounding	http://www-al.nii.ac.jp	Akiko Aizawa	Professor	Master's or PhD students		3-6 months (6 month is preferable)	
69	Multimedia Data Mining and Analysis	Multimodal deep learning for cross-modal retrieval between image and text, venue inference, multimedia content recommendation	http://research.nii.ac.jp/~yiyu/	Yi Yu	Assistant Professor	Master's or PhD students	4	3-6 months	
70	Artificial Intelligence and Music	Deep generative model for lyrics-to-melody generation, melody-to-lyrics generation	http://research.nii.ac.jp/~yiyu/	Yi Yu	Assistant Professor	Master's or PhD students		3-6 months	
71	Digital Humanities	Machine learning for image processing (esp. character recognition), geographic information, linked data and metadata management for cultural heritage	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students	4	3-6 months	A student with programming skills and interests in real problems is preferred.
72	Earth Environmental Informatics	Big data analytics (esp. image processing, remote sensing and machine learning) for societal problems such as environment and sustainability	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students		3-6 months	A student with programming skills and interests in real problems is preferred.
73	Crisis Informatics	Big data analytics (esp. image processing, natural language processing, and machine learning) for natural disasters and crisis	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students		3-6 months	A student with programming skills and interests in real problems is preferred.
74	Open Science	Research on a new trend of science, such as open data, data citation, citizen science, and open innovation	http://agora.ex.nii.ac.jp/~kitamoto/education/internship/	Asanobu Kitamoto	Associate Professor	Master's or PhD students		3-6 months	A student with programming skills and interests in real problems is preferred.

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
75	Scalable Algorithms and Real-time Distributed Systems for Drone Traffic Management	Research and development of scalable CDR (Conflict Detection and Resolution) algorithms for Unmanned Aircraft Systems ("drone") Traffic Management (UTM)	http://research.nii.ac.jp/~prendinger/t/2019(2).pdf http://research.nii.ac.jp/~prendinger/	Helmut Prendinger	Professor	Master and PhD students welcome	6	4 – 6 months	**Description:** This work is related to a large-scale Japanese Government project on designing, specifying, and testing UTM in Japan. It is similar to NASA UTM in US and u-Space in Europe. **Qualifications:** Software development experience in Java and C++. Good knoweledge of the Client-Server model and main Data Structures, Design Patterns (e.g. Singleton, Strategy, etc) and Algorithms. Experience with client-side web technologies (e.g. HTML, CSS, Javascript, Bootstrap) and/or mobile app development (e.g. Android) is a plus. Demonstrated interest into develop robust software to be tested in realistic environments. Longer stay (6 months) is preferred for good result or publication
76	Efficient Airspace Management for Drone Traffic	Research and development of methods for Airspace Management, using tree data structures and recursive algorithms, to increase the efficiency of the UTM system	http://research.nii.ac.jp/~prendinger/t/2019(2).pdf http://research.nii.ac.jp/~prendinger/	Helmut Prendinger	Professor	Master and PhD students welcome		4 – 6 months	For Description and Qualifications, please see previous entry
77	Deep Learning on Drone	Object and action recognition from drone perspective	http://research.nii.ac.jp/~prendinger/t/2019(2).pdf http://research.nii.ac.jp/~prendinger/	Helmut Prendinger	Professor	Master and PhD students welcome		4 – 6 months	Solid programming skills, e.g., C++ and Python. Solid background in machine learning and Deep Learning. Longer stay (6 months) is preferred for good result and possibly a publication
78	Computer Graphics	Quadrilateral/Hexahedral Mesh Generation	http://research.nii.ac.jp/~takayama/	Kenshi Takayama	Assistant Professor	Master's or PhD students	2	3-6 months	
79	Speech information processing	Expressive speech synthesis using deep learning	Relevant papers include, but do not limited to, [1] Jaime Lorenzo-Trueba, Gustav Eje Henter, Shinji Takaki, Junichi Yamagishi, Yosuke Morino, Yuta Ochiai, Investigating different representations for modeling and controlling multiple emotions in DNN-based speech synthesis, Speech Communication　99 135–143　May 2018	Junichi Yamagishi	Professor	PhD students	4	4-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with speech processing. · Familiarity with DNN tools and speech tools are preferable
80	Speech information processing	End-to-end speech synthesis and waveform modeling using deep learning	Relevant papers include, but do not limited to, [2] Xin Wang, Shinji Takaki, Junichi Yamagishi, "Neural source-filter-based waveform model for statistical parametric speech synthesis", Accepted for ICASSP 2019　May 2019 and [3] Yusuke Yasuda, Xin Wang, Shinji Takaki, Junichi Yamagishi, "Investigation of enhanced Tacotron text-to-speech synthesis systems with self-attention for pitch accent language", Accepted for ICASSP 2019	Junichi Yamagishi	Professor	PhD students		4-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with speech processing and/or machine learning. · Familiarity with DNN tools and speech tools are preferable
81	Speech information processing	Multi-speaker speech synthesis and adaptation	Relevant papers include, but do not limited to, [4] Yi Zhao, Shinji Takaki, Hieu-Thi Luong, Junichi Yamagishi, Daisuke Saito, Nobuaki Minematsu, "Wasserstein GAN and Waveform Loss-based Acoustic Model Training for Multi-speaker Text-to-Speech Synthesis Systems Using a WaveNet Neural Vocoder", IEEE Access 6(1) 60478-60488 Dec 2018 and [5] Hieu-Thi Luong, Junichi Yamagishi, "Scaling and bias codes for modeling speaker-adaptive DNN-based speech synthesis systems", SLT 2018: The IEEE Workshop on Spoken Language Technology,　Dec 2018	Junichi Yamagishi	Professor	PhD students		4-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills and experience with speech processing and/or machine learning. · Familiarity with DNN tools and speech tools are preferable

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
82	Speech information processing	Automatic speaker verifications and its anti-spoofing	Relevant papers and webpage include, but do not limited to, [6] Md Sahidullah, Hector Delgado, Massimiliano Todisco, Tomi Kinnunen, Nicholas Evans, Junichi Yamagishi, and Kong-Aik Lee, "Introduction to Voice Presentation Attack Detection and Recent Advances" (Chapter 15, Handbook of Biometric Anti-Spoofing, 2nd edition) [7] Cheng-I Lai, Alberto Abad, Korin Richmond, Junichi Yamagishi, Najim Dehak, Simon King, "Attentive Filtering Networks for Audio Replay Attack Detection", Accepted for ICASSP 2019 May 2019 http://www.asvspoof.org	Junichi Yamagishi	Professor	PhD students		4-6 months	The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills. Familiarity with software tools including ALIZE, MSR identity toolbox, Sidekit is preferable
83	Speech information processing	Multi-modal speech processing	Relevant papers include, but do not limited to, [8] Fuming Fang, Xin Wang, Junichi Yamagishi, Isao Echizen, "Audiovisual speaker conversion: jointly and simultaneously transforming facial expression and acoustic characteristics", Accepted for ICASSP 2019 May 2019	Junichi Yamagishi	Professor	PhD students		4-6 months	Examples of multimodalities include audio visual synthesis/verification, automatic natural language generation, machine translation, articulatory information. The successful candidate should be a PhD student in speech processing, computer science, engineering, linguistics, mathematics, or a related discipline. He or she should have strong programming skills. Familiarity with relevant software tools including DNN tools is preferable
84	Computer Vision and Computer Graphics	Computational Photography: Deep learning, Image-based rendering, Image processing, Color analysis, Spectral imaging	http://research.nii.ac.jp/~imarik/ http://research.nii.ac.jp/pbv/	Imari Sato	Professor	Master's or PhD students	2	5 to 6 month	A basic knowledge of Image Analysis and/or Machine learning, and good programming skills are required
85	Text mining	Text mining on embedding models	http://www.ldear.nii.ac.jp/~takasu/en/	Atsuhiro Takasu	Professor	Master's or PhD students	3	3 - 6 months	
86	Big data	Data analysis and mining methods for (sensor) big data	http://www.ldear.nii.ac.jp/~takasu/en/	Atsuhiro Takasu	Professor	Master's or PhD students		3 - 6 months	

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
4. Information and Society Research Division									
87	Media Clones	Development of methods for protecting the privacy, biological, and environmental information to prevent fake information generation.	http://www2c.comm.eng.osaka-u.ac.jp/proj/mc/eindex.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students	3	3 to 6 months	
88	Media Clones	Verification of the capability of generating various types of media clones such as audio, visual, text, and social media derived from the fake information.	http://www2c.comm.eng.osaka-u.ac.jp/proj/mc/eindex.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
89	Security	Fundamental techniques and systems for content security	http://research.nii.ac.jp/~iechizen/official/research-e.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
90	Privacy	Privacy-enhancing technologies for resolving trade-offs between data anonymity and utility	http://research.nii.ac.jp/~iechizen/official/research-e.html http://research.nii.ac.jp/~iechizen/official/achievements-e.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
91	Image and speech processing	Audiovisual speaker conversion based on deep learning	F. Fang et al. "High-quality nonparallel voice conversion based on cycle-consistent adversarial network," ICASSP, 2018. https://nii-yamagishilab.github.io/avsc/index.html	Isao Echizen	Professor	Master's or PhD students		3 to 6 months	
92	AI-enhanced education and learning analytics	Personalized learning and cognitive diagnostic modelling		Yuan Sun	Associate Professor	Master's or PhD students	2	2 to 6 months	
93	Interactive Information Retrieval	Understanding and Modeling User Behaviour during Complex Search Task	The current project page has not been set up, but the previous related project page is available at; http://cres.jpn.org/?FrontPage	Noriko Kando	Professor	Either Master and PhD students are fine, but priority will be given to PhD student	6	6 months	The grand target of the project is to propose a mechanism to support the users conducting complex/exploratory search tasks. As a step toward the target, several internship research tasks are prepared as following, but not limited to: 1) enhance the method to assess the "success" of complex/exploratory search outcome based on Concept map and others, 2) investigate user search behaviour in terms of dwell time, link depth, search trail, , engagement, perceived task difficulty, cognitive task complexity, and/or outcome, 3) investigate the relationship between user's attributes such as domain expertise, task familiarity, time constraint, etc. and the search behaviour and outcomes, 4) building and/or enhancing the tools usable for the above mentioned 1) -3). Any other topic related to this research direction shall be considered.
94	Interactive Information Retrieval and Human Computer Interaction	Research and Developing a lifelog camera- or a sensor- based method to enhance the interaction between in-building museum visitor and artifacts displayed at Museum. Use iPadPro 2018.	Enhance a functionality of detailed interaction between visitor and exhibits using lifelog-cameras or any other light-weight sensing devices.	Noriko Kando	Professor	Either Master and PhD students		6 months	Enhance the interaction functionality of the current prototype system of an interactive exploratory user guide using ipadPro 2018. For the sensors, the current prototype system using iBeacons, and this project will investigate and try tother mechanisms to sense and identify user's behaviour in the museum.
95	Human computer Interaction, Design	Design method of the postcard which containing the images of the artifacts that the visitor observed in the museum visit, based on each visitor's behaviour in the museum	To enhance the prototype Interactive user guide system for Museum, this project conducts user experiment to obtain the feedback to improve the design and the effective and attractive layout of the images of the museum objects for a postcard for each visitor, based on each visitor's behaviour in the museum visit.	Noriko Kando	Professor	Either Master and PhD students		6 months	Related to the above-mentioned #2 project.

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
96	Argument Mining / Argument Summarization / Argument Structure Analysis	(1) Argument Mining / Argument Summarization / Argument Structure Analysis, or (2) Sentiment Analysis	https://poliinfo.github.io/	Noriko Kando	Professor	Either Master and PhD students		6 months	Regarding a challenge on political information analysis in the NTCIR's QA Lab shared task series and JSPS Funded Project on Stance Analysis, this project aims 1) survey of the exisiting literature on argument analysis (mining, summarization, structure analysis), 2) propose system(s) for automatic argument analysis / mining / summarization using either a) NTCIR-15 Polinfo Corpus (Japanese), or b) any other corpus in English. For (2) Sentiment analysis
97	Citation analysis	Citation analysis of the "Information Retrieval" domain		Noriko Kando	Professor	Either Master and PhD students		6 months	To analyse the trend and structure of research area of Information Retrieval (IR) and Interactive Information Retrieval (IIR) using various citation analysis methods including co-citation mapping. Compare the analysis published in 1991*, analyse how the domain had been developped over the three decades [NB: * Noriko Kando et al (1991) "Structure of Information Retrieval Research: Tracking the Specialties and Develpment of Research Using Co-citation Maps and Citation Diagrams"

List of research topics for NII International Internship Program 2019 2nd Call

No.	Research area	Title of the research	Website	Name of supervisor	Title of the supervisor	Requirements for applicants: Master's / Ph.D. Student	Total number of acceptance per supervisor	Duration : 2-6months (less than 180days)	Comments
5. Management and Outside Collaboration on R&D									
98	Data Mining / Machine Learning	Anomaly Detection and Intrinsic Dimensionality	https://www.dropbox.com/s/wokjllg5qfyykua/proj-anomaly-detection.pdf?dl=0	Michael Houle	Professor	Either	6	4-6 months	Priority given to PhD students, and for internships of 6 months. Shorter internships (2-3 months) are possible for students who are already collaborators.
99	Data Mining / Machine Learning	Classification and Intrinsic Dimensionality	https://www.dropbox.com/s/ltyb63zm0f46wru/proj-classification.pdf?dl=0	Michael Houle	Professor	Either		4-6 months	Priority given to PhD students, and for internships of 6 months. Shorter internships (2-3 months) are possible for students who are already collaborators.
100	Data Mining / Machine Learning	Feature Selection and Intrinsic Dimensionality	https://www.dropbox.com/s/cpgsxqosk5jd6tf/proj-feature-selection.pdf?dl=0	Michael Houle	Professor	Either		4-6 months	Priority given to PhD students, and for internships of 6 months. Shorter internships (2-3 months) are possible for students who are already collaborators.
101	Databases / Data Mining	Similarity Search and Intrinsic Dimensionality	https://www.dropbox.com/s/3lk6rhfs5nezseu/proj-similarity-search.pdf?dl=0	Michael Houle	Professor	Either		4-6 months	Priority given to PhD students, and for internships of 6 months. Shorter internships (2-3 months) are possible for students who are already collaborators.
102	Data Mining	Subspace Clustering and Intrinsic Dimensionality	https://www.dropbox.com/s/e2si6kct5l6o4nk/proj-subspace-clustering.pdf?dl=0	Michael Houle	Professor	Either		4-6 months	Priority given to PhD students, and for internships of 6 months. Shorter internships (2-3 months) are possible for students who are already collaborators.
103	Theory (Algorithmics, Statistics, Machine Learning)	Theory of Intrinsic Dimensionality	https://www.dropbox.com/s/punl3fqlkek0xh2/proj-theory-of-ID.pdf?dl=0	Michael Houle	Professor	Either		4-6 months	Priority given to PhD students, and for internships of 6 months. Shorter internships (2-3 months) are possible for students who are already collaborators.