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ஶ்ரீ நிவாஸன் கண்ணன்

श्रीनिवासन् कणन्

K.Srinivasan

***(also spelt as:* Srinivasan Kannan, Shrinivaasan Kannan, Shrinivas Kannan)**

Shortest CV - [LatexPDF](#)

Longest CV - [PDF](#)

Longest CV - [Text](#)

Krishna iResearch Open Source Products - open source research initiative of self - (2003 - Present) - Profile (SourceForge), Profile (GitHub), Profile (GitLab)

NeuronRain - a new Machine Learning, Cloud and Messaging augmented OS:

NeuronRain Research - SourceForge Repositories - for astronomy datasets and academic research:

ACADPDRAFTS - Publications, Drafts etc.,

VIRGO - VIRtual Generic Os - Linux kernel fork-off (kernel modules,system calls etc.,) with cloud and machine learning features (32 bit based on 4.1.5 mainline)

VIRGO64 - 64 bit version of previous VIRGO Linux kernel based on 4.13.3 mainline

USBmd - USB driver kernel module for network analytics, debugging etc., based on 32-bit 4.1.5 linux kernel

USBmd64 - USB driver kernel module for network analytics, debugging etc., based on 64-bit 4.13.3 linux kernel

ASFER - AStroinFER - BigData Analytics and Machine Learning Software for Large Data Sets (at present implemented for Astronomical Datasets)

KINGCOBRA - Linux kernelspace messaging with miscellaneous applications based on 32-bit 4.1.5 linux kernel

KINGCOBRA64 - Linux kernelspace messaging with miscellaneous applications based on 64-bit 4.13.3 linux kernel

NeuronRain Green - GitHub and GitLab Repositories - for generic datasets

on cloud (replicated in [GitLab](#))

[VIRGO - VIRtual Generic Os -](#) Linux kernel fork-off (kernel modules,system calls etc.,) with cloud and machine learning features (32 bit based on 4.1.5 mainline)

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[KINGCOBRA64](#) Linux kernelspace messaging with miscellaneous applications based on 64-bit 4.13.3 linux kernel

NeuronRain Documentation and Licensing

[Krishna_iResearch_DoxygenDocs](#) [(GitHub)](#) (*[NeuronRain - Architecture Diagrams 1](#)* , [NeuronRain - Architecture Diagrams 2](#))

[Krishna_iResearch_DoxygenDocs (](#)[GitLab](#)[)](#)

[Krishna_iResearch_DoxygenDocs (](#)[SourceForge](#)[)](#)

[NeuronRain Documentation and Licensing in ReadTheDocs and FAQ (Previous Docs repos have most recent updates on Licensing and PDF/HTML Documentation)](#)

[Krishna iResearch (old link updated in 2006)](#)

Bifurcation of code bases into 32-bit and 64-bit previously has been chosen than branching/ifdefs because of drastic difference in linux kernel versions/functionalities/dependencies between base kernels for 32 and 64

bits. The opensource codebases in SourceForge, GitHub and GitLab above are non funded,non profit academic research efforts. Premium technical support is available for above opensource codebases. GitHub/GitLab repositories implement NeuronRain Green and SourceForge repositories implement NeuronRain Research versions. Dual licensed closedsource premium commercial versions with enhanced features on above GPL products in development since 2010.

Free online course materials

GRAFIT Open Learning - [GitHub]

GRAFIT Open Learning - [GitLab]

GRAFIT Open Learning - [SourceForge]

Virtual GitHub Classroom has been created for GRAFIT course material repository - https://classroom.github.com/classrooms/8086998-https-github-com-shrinivaasanka-grafit which is an online classroom training based on assignments. Interested students may contact directly by email to ka.shrinivaasan@gmail.com.

Research statements

Research statement 1 (2010)

Research statement 2 - with some proof sketches (2011) (Algorithm for Timeout implemented on Global Decisioning Platform 3.0 - Copyright: Global Analytics)

Research statement 3 - with some proof sketches (2014)

Research Statement 4 - Presentation to BITS Pilani (6 June 2018) - ppt

Research Statement 5 (2018)

Patents

Team Patents - Sun Microsystems - 2000-2005

Disclosure - Patent Pending (Copyright: Sun Microsystems - 2002 - Reference Number: P8490)

Survival Index Based Transaction Timeout Manager (Java PoC implemented on SunOne-iPlanet Application Server 6.5 J2EE-JTS Transaction Manager - now GlassFish - https://github.com/javaee/glassfish/tree/master/appserver)

Publications (2008-2011) - (CMI-IMSc-IIT, Chennai) guided and reviewed (Google Scholar)

Few Algorithms for Ascertaining Merit Of a Document

(Master's thesis) arXiv Link to Few Algorithms for Ascertaining Merit of a Document

Presentation slides - Few Algorithms for Ascertaining Merit Of a Document

(Published during PhD - October 2010) TAC 2010 dataset evaluation - Update summarization with Interview Algorithm (with some updates added to the above)- paper

TAC 2010 dataset evaluation - Update summarization with Interview Algorithm (with some updates added to the above)- slides

NIST TAC 2010 link to Update Summarization with Interview Algorithm

Decidability of Existence and Construction of a Complement of a given function

arXiv Link to Decidability of Existence and Construction of a Complement of a given function

Circuits for Complement of a function - old version

NeuronRain Theory Drafts (2003-present) - private unaffiliated research - theory aligned to features of NeuronRain opensource products

Complexity Theoretic Analysis of Non-majority and Majority Social Choice, Majority Voting Boolean Composition Circuit and KRW Conjecture, P versus NP, ABC Conjecture, Four color Theorem, Zorn Lemma, Axiom of Choice (AOC), XOR Lemma and Hardness Amplification, Circuit Lowerbounds, Pseudorandomness(generators and extractors), Goodness of Voting and Margulis-Russo Threshold/Condorcet Jury Theorem (and its recent versions by [Black], [Ladha]), Theoretical Electronic Voting Machines and Pre-poll - Post-poll Analytics, Vowelless Syllable Boundary Text Compression and Compressed Sensing, Computational Chaos, Polynomial Reconstruction Problem, Complement Functions - Complementary Sets and their Function Representation(e.g Beatty Functions), Combinatorics (Ramsey coloring of sequences), PAC Learning, Prime-Composite complementation and pattern in primes, Arithmetic Progressions, Diophantine Analysis and Representation, Riemann Zeta Function, Hypergeometric Functions, Clouds - Logical time and causality(EventNet), Formal Languages (Turing degrees, Embedding in vector space, Lambda Calculus, Category Theory, Logic) and learning lambda expressions from Natural Language Text, Cognitive Psychology - Grounded Cognition and ThoughtNet Evocation, Partial order intrinsic merit rankings and Galois connections, Graph theoretic/Computational Neurolinguistic/Question-Answering Interview Intrinsic Merit/Fitness/Fame and Experiential Learning in the context of WWW (people, text, audio - speech and music, visuals-video and images, economies) and Social/Economic networks, Social Network Models - Cellular Automaton and Random Graph Diffusion of Concepts-Memes-Fads-Cybercrimes, Game Theory, BKS Conjecture and Question-Answering,

Machine Translation, Algorithmic Graph Theoretic Learning Models, Computational Learning Theory, Software Analytics/Program Analysis/Debug Analytics, Operating System Kernel and Scheduler Analytics, Astronomical Analytics of Celestial Bodies and correlations to Seismic-Atmospheric-Oceanic events, Urban planning analytics, Computational Astrophysics - N-body problem, Media Analytics and Advertisement Analytics, Preferential Attachment, Brand Loyalty and Business Intelligence, People Analytics/HR Analytics, Sports Analytics, Handwriting and Face Recognition for unique identification, Fame/Merit Equilibrium (Welfare Functions, Flow Market Equilibrium and Convex-Concave Programming in Algorithmic Economics applied to Fame-Merit) and Economic Merit(Intrinsic pricing),Cryptocurrencies and Money Trail (EventNet Graph),Optimal Denomination and Money Changing - Coin Problem,Mechanism Design, Time series analysis (economic and weather forecasts), Neural Networks and Deep Learning, Quantum mechanics and Intrinsic Fitness/Merit(Bose-Einstein condensation in networks), Locality Sensitive Hashing and Separate Chaining Hash tables, Multiple Agent Resource Allocation, Integer Partitions(additive and multiplicative), Set Partitions, Space filling/Lagrangian Four Square Theorem Tiling/Circle Packing, Exact Cover, Random Closed Packing, Number Theory, Quadratic and Linear Programming, Cellular Automata, Satisfiability (Least Square SAT Solvers and QBFSAT), Random restrictions and Hastad Switching Lemma, Classical NC-PRAM-BSP (k-mergesort, segment tree, wavelet tree, ray shooting queries, planar point location, sorting networks,local search of rasterized hyperbolic segment arithmetic progressions), Randomized NC and Quantum NC Computational Geometric Integer Factoring, Rasterization of Algebraic Curves, Algebraic Geometry, Knot Theory, Topology and Connections amongst them -
(most recent draft updates to all publications previously and earlier drafts below - in text format - nonlinear theoretical writeups interspersed between NeuronRain code commits in SourceForge, GitLab and GitHub - links to relevant feature implementations and theory drafts in design notes of NeuronRain repositories - AstroInfer,USBmd,VIRGO,KingCobra,GRAFIT,Krishna_iResearch_Doxygen_Docs,Acadpdrafts):

Krishna_iResearch_DoxygenDocs (GitHub)

Krishna_iResearch_DoxygenDocs (GitLab)

Krishna_iResearch_DoxygenDocs (SourceForge)

Earlier Publication Drafts (2012 - present) - unaffiliated private theoretical research - unguided and unreviewed

Earlier Publication Drafts (PDF):

Integer Partitions and Hash functions (in Tex) - **2012**

Interview Algorithm is in IP=PSPACE (in Tex) - **2012**

Few Non-trivial Questions and Shell Turing Machines (in Tex) - 2012

Complexity aspects of Non-majority and Majority Social Choice, Hash Functions, Integer Partitions, Graph theoretic Document summarization etc.,:

Arrow's Theorem, Circuit For Democracy and Pseudorandom Choice and P Versus NP - (Draft - 17 September 2014)

Document Summarization from WordNet Subgraph obtained by Recursive Gloss Overlap (Draft - 25 July 2014)

Integer Partitions and Hash Functions (new version - 5 April 2014 and 17 April 2014)

Lower Bounds for Majority Voting and Pseudorandom choice

Circuits For Computing Error Probability of Majority Voting (new version - 10 April 2014)

Circuits For Computing Error Probability of Majority Voting (old version - March 2013)

In-depth Analysis of a Variant of Majority Voting with relation to ZFC - updated draft (new version - 8 February 2014)

In-depth Analysis of a Variant of Majority Voting with relation to ZFC (old version - 8 March 2013)

Parallel PRG and Space Filling:

A Chaos theoretic Parallel Pseudorandom generator in RNC For Majority Voting and Pseudorandom Choice

Analysis of a Randomized Space Filling Algorithm and its Linear Program Formulation - updated draft additions for Cellular Automaton Algorithm, NC circuit construction for it

Analysis of a Randomized Space Filling Algorithm and its Linear Program Formulation (previous version)

Discrete Hyperbolic Factorization - previous versions:

Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization (Version 1)

Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - with Interpolation Search (Version 2 - updated 25 June 2013)

Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - with Interpolation

Search (Version 3 - updated 30 June 2013 with rough notes)

Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - with Interpolation Search (version 4 - updated 1 July 2013 and Version 5 - updated 20 July 2013 including all handwritten notes)

Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - using Rectangular Binary (or) Interpolation Search (version 12 - updated 25 August 2013)

Informal Notes on Derivation of Upperbound for Discrete Hyperbolic Factorization with Stirling Formula - using Rectangular Binary or Interpolation Search (10 September 2013)

Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - using Rectangular Binary (or) Interpolation Search applying Stirling Formula (Version 14 - 20 September 2013)

Discrete Hyperbolic Factorization - Parallel RAM algorithm:
An NC algorithm and some Sequential Search Algorithms for Discrete Hyperbolic Polylogarithmic Sieve For Factorization using Binary or Interpolation Search with Stirling Formula and Logarithmic Sorted Tile Merge in PRAM model (20 November 2013) and **AsFer PRAM implementation design notes with tile id(s) (21 November 2013)**

An NC algorithm and some Sequential Search Algorithms for Discrete Hyperbolic Polylogarithmic Sieve For Factorization using Binary or Interpolation Search with Stirling Formula and Logarithmic Sorted Tile Merge in PRAM model - **updated draft with PRAM to NC reduction and input size details and references (25 September 2014)**

Miscellaneous Informal Notes related to above drafts (Handwritten) (Note: these are not in any structured format and might have typos and errors)

Implication Graphs, Error probability of Majority Voting and P Versus NP Question

Minimum Convex Hulls of Implication Graphs and Hidden Markov Model on class nodes of Concept Hypergraph

Minimum Convex Hulls of Implication Random Growth Networks and Perfect Voter Decidability

Philosophical Analysis of Democracy Circuit and Pseudorandom Choice

Schur's Theorem, Restricted Partitions with distinct parts and Hash Table Collision Chains

Riemann Zeta Function, Ramanujan Graphs and Ihara Zeta Function - **(30 August 2014)**

[Riemann Zeta Function, Ramanujan Graphs and Ihara Zeta Function](#) **- (25 October 2014)**

[Miscellaneous notes on Krishna iResearch Open Source products design, Democracy Circuit, Complement Function circuit and Parallel RAM to NC reduction for ANSV algorithm in Discrete Hyperbolic Factorization - (6 January 2015)](#)

Earlier Publication Drafts (TeX):

[Arrow's Theorem, Circuit For Democracy and Pseudorandom Choice and P Versus NP - (Draft - 17 September 2014)](#)

[Document Summarization from WordNet Subgraph obtained by Recursive Gloss Overlap (Draft - 25 July 2014)](#)

[Integer Partitions and Hash Functions (new version - 5 April 2014 and 17 April 2014)](#)

[Lower Bounds for Majority Voting and Pseudorandom choice](#)

[Circuits for Computing Error Probability of Majority Voting (new version - 10 April 2014)](#)

[Circuits For Computing Error Probability of Majority Voting](#) (old version - March 2013)

[In-depth Analysis of a Variant of Majority Voting with relation to ZFC - updated draft](#) (new version - 8 February 2014)

[In-depth Analysis of a Variant of Majority Voting with relation to ZFC](#) (old version - 8 March 2013)

Parallel PRG and Space Filling:

[A Chaos theoretic Parallel Pseudorandom generator in RNC For Majority Voting and Pseudorandom Choice](#)

[Analysis of a Randomized Space Filling Algorithm and its Linear Program Formulation](#)

Discrete Hyperbolic Factorization - previous versions:

[Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization](#) (Version 1)

[Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - with Interpolation Search](#)(Version 2 - updated 25 June 2013)

[Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - with Interpolation Search](#) (Version 3 - updated 30 June 2013)

[Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - with Interpolation Search](#) (Version 4 - updated 1 July 2013 and Version 5 - updated 20 July 2013 including all handwritten notes)

[Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - using Rectangular Binary (or) Interpolation Search (Latest - version 12 - updated 25 August 2013)](#)

[Discrete Hyperbolic Polylogarithmic Sieve For Integer Factorization - using Rectangular Binary (or) Interpolation Search applying Stirling Formula (20 September 2013)](#)

Discrete Hyperbolic Factorization - Parallel RAM algorithm:
[An NC algorithm and some Sequential Search Algorithms for Discrete Hyperbolic Polylogarithmic Sieve For Factorization using Binary or Interpolation Search with Stirling Formula and Logarithmic Sorted Tile Merge in PRAM model (20 November 2013)](#)

[An NC algorithm and some Sequential Search Algorithms for Discrete Hyperbolic Polylogarithmic Sieve For Factorization using Binary or Interpolation Search with Stirling Formula and Logarithmic Sorted Tile Merge in PRAM model - updated draft with PRAM to NC reduction and input size details and references (25 September 2014)](#)

Blogs

[HAMSA](#) (Computer Science - Machine Learning etc., - complements [GRAFIT](#) course material)

[VARAHAMIHIRA](#) (Astronomy, Sanskrit etc.,)

Alumni Profiles

[CMI Alumnus page](#) (2010-)

[CMI Research Scholar Alumnus Page](#) (2010-2011) [no JRF/academic or industry affiliation at present - doing private research]

[PSG Tech Alumnus Page (1999-)](#)

Personal Memorabilia and selected photos

Passport (May 2015)

At Mahabalipuram - September 2012

View of SIPCOT TCS from CMI in twilight - August 2010

Sun Microsystems group photo 1 (2000)

Sun Microsystems 2 (2004)

Sun Microsystems 3 (2004)

COBRA (a not-so-naive cloud precursor implemented during BE in 1999 on CORBA)

PSG Tech Photos (1995-1999)

Past photos - 1 **(2003)**

Past photos - 2 **(2003)**