Presentations, papers, reports and one day courses of James Brakefield

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Date	Format	Topic	Author	Nature	Where	Web Link	location	Title	Comments	Abstract
2/24/2025	pptx	uP Arch	JCB	info	C16	https://events.vtools.ieee.org/m/467923	Web page	A Digital Processor of RISC Variety Suitable for Architecture Exploration	Includes slides from earlier 2/16/2016 talk Covers TROC16; 6 attachments	RISC computer architecture of my design in an effort to achieve high code density, deterministic execution and a uniform base for diversity. Architecture provdes for four data sizes and four data types.
2/26/2024	pptx	Niklaus Wirth	JCB	info	C16	https://events.vtools.ieee.org/m/404641	Web page	A retrospective on Niklaus Wirth	Carrol Redford provided Pascal examples	Niklaus Wirth's legacy includes several programming languages, computer workstations and FPGA courseware. Simplicity was his hallmark
11/6/2023	pptx	fltg-pt	JCB	info	C16	https://events.vtools.ieee.org/m/381287	Web page	Floating-Point Arithmetic and Brakefield's Patent	https://patents.google.com/patent/US5892697A/en	Balanced talk on computer floating-point arithmetic and his often cited patent 4 attachments
2/21/2023	pptx	FPGA ed	JCB	info	C16	https://events.vtools.ieee.org/m/345505	Web page	Progress report and Education Review and update on FPGA Boot Camp grant	Abbreviated slides, full slides at github	A look at more advanced FPGA education: boards, tools and research. Slide deck includes link to $20 FPGA Kit sildes
1/27/2023	pptx	FPGA	JCB	report		https://github.com/jimbrake/20-dollar-FPGA-kit	Git hub	A $20 FPGA kit	Pictures of each component on the web page	One of the goals of the FPGA Boot Camp grant was a lowest cost FPGA kit. Using a $14 FPGA board from China it is possible.
10/15/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/329364	Git hub	Single day Boot camp for Digital Systems Education	Meeting set up by Carol Redfield, both 1st day & 2nd day slides	Conducted over one Saturday at St. Mary's University
9/3/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/321263	Web page	Boot camp for Digital Systems Education, 2nd week	FPGA Boot camp presentation, 2nd day slide deck	Conducted over two Saturdays at St. Mary's University
8/27/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/321262	Web page	Boot camp for Digital Systems Education, 1st week	First day slides, adgenda listed	Conducted over two Saturdays at St. Mary's University
7/16/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/318519	Web page	Boot camp for Digital Systems Education, 2nd week	FPGA Boot camp presentation, 2nd day slide deck	Conducted over two Saturdays at St. Mary's University
6/25/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/317075	Web page	Boot camp for Digital Systems Education, 1st week	First day slides, adgenda listed. Four files plus slide deck	Conducted over two Saturdays at St. Mary's University
6/16/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/316786	Web page	Boot camp for Digital Systems Education 2nd Saturday	Second day slides, adgenda listed	Conducted over two Saturdays at St. Mary's University
5/25/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/317075	Web page	Boot camp for Digital Systems Education, 1st week	First day slides, adgenda listed. Four files plus slides	Conducted over two Saturdays at St. Mary's University
5/18/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/316786	Web page	Boot camp for Digital Systems Education 2nd Saturday	Second day slides, adgenda listed	Conducted over two Saturdays at St. Mary's University
5/11/2022	pptx	FPGA ed	JCB	FPGA course	St. Marys	https://events.vtools.ieee.org/m/316279	Web page	Boot camp for Digital Systems Education, 1st week	First day slides, adgenda listed	Conducted over two Saturdays at St. Mary's University
3/22/2022	pptx	FPGA ed	JCB	info	C16	https://events.vtools.ieee.org/m/306653	Web page	Economies of Scale for FPGA Education	AKA Low Cost FPGA Boards	idea is to do for FPGAs what Raspberry Pi and Arduino have done for microprocessor education
3/22/2022	pptx	FPGA ed	JCB	info	C16	https://events.vtools.ieee.org/m/306653	Web page	Economies of Scale for FPGA Education	AKA Low Cost FPGA Boards	idea is to do for FPGAs what Raspberry Pi and Arduino have done for microprocessor education
3/18/2021	pptx	ICs	JCB	info	LMAG	https://events.vtools.ieee.org/m/263775	Web page	**Small Chips and their many Usages**	Passed around microscope & card with chips glued on	Talk will cover what's available in "tiny" integrated circuits and other related components: in many cases smaller than a cubic millimeter.
3/16/2021	pptx	ICs	JCB	info	C16	https://events.vtools.ieee.org/m/263773	Web page	**Small Chip Landscape**	Passed around microscope & card with chips glued on	Talk will cover what's available in "tiny" integrated circuits and other related components: in many cases smaller than a cubic millimeter.
10/20/2020	ppt	Sys Arch	JCB	info	LMAG C16	https://events.vtools.ieee.org/m/241803	Web page	Legacy Updates for Avionics	Work at BAE, neat pictures	Work on RIU, FLR-9 and IPo1553, all used FPGAs
2/19/2020	pptx	gaming	JCB	info	C16	https://events.vtools.ieee.org/m/220917	Web page	Review of the MiSTer Gamming Console	Raffled Altera card	MiSTer is an open project that aims to recreate various classic computers, game consoles and arcade machines, using modern hardware.
9/17/2019	pptx	fltg-pt	JCB	info	C16	https://events.vtools.ieee.org/m/203892	Web page	Introduction to Posit™ Arithmetic	Figures and some slides curtesy of John Gustafson	New floating-point format originated by John Gustafson. Posits take, in many cases, half the memory space as IEEE-754
10/19/2018	pptx	uP timeline	JCB	info	LMAG	https://events.vtools.ieee.org/m/178555	Web page	Provisioning a 64-bit computer with 2^64 bytes of virtual memory	Used grain of rice on checker-board story	A light hearted look at processor generations over the years.
5/23/2018	pptx	FPGA	JCB	info	Austin Consult	https://events.vtools.ieee.org/m/173193	Git hub	FPGA Chips: Introduction, History, and Applications	PoK-e-Jo's Smokehouse	30 years of FPGAs & are now into their 3rd generation. A way to study them & their applications is the timeline & their expanding capabilities.
4/17/2018	pptx	uP Arch	JCB	info	C16	https://events.vtools.ieee.org/m/170930	Web page	**Soft-Core CPUs An inventory of ~600 designs**	https://github.com/jimbrake/cpu_soft_cores	One of the most exciting parts of learning VHDL or Verilog is creating a CPU of your own design.
1/10/2018	pptx	uP ed	JCB	info	Inventors mtg	https://alamoinventors.org/pdfs/landEJan18.pdf	Git hub	Microprocessor prototyping by non-technical inventors	lots of pictures	Survey of avaiable uP boards and accessoraies
7/20/2017	pptx	uP ed	JCB	info	LMAG	https://events.vtools.ieee.org/m/46028	Web page	**Microprocessor Tools and Kits Suitable for Education**	exhibited Raspberry Pi zero and Arduino vehicle	variety exists in the small microprocessor kits targeted towards the "educational" market. Examples of each genre will be shown

6/16/2016	pptx	FPGA	JCB	info	LMAG	https://events.vtools.ieee.org/m/135581	Web page	FPGA chips: Intro, History and Applications	Very dated	30 years of FPGAs & are now into their 3rd generation. A way to study them & their applications is the timeline & their expanding capabilities.
3/7/2016	ISE proj	uP Arch	JCB	report	open cores	https://opencores.org/projects/rois	Git hub	Register Oriented Instruction Sets.	rois24_24min.zip /jimbrake/ISA-Exploratorium/tree/ROIS24_24	architectural exploration with a goal of a high performance FPGA soft core processor
2/16/2016	pptx	FPGA to uP	JCB	info	C16	https://events.vtools.ieee.org/m/38087	Web page	DIY soft-core uP Microprocessor design using an FPGA	Now has correct slides	will cover FPGA resource utilization, instruction set design, data path considerations, getting to “Hello World” & completing the implementation.
3/17/2015	pptx	FPGA	JCB	info	C16	https://events.vtools.ieee.org/m/32967	Web page	Le Grande Tour of FPGA Land	posted 2022 slide deck version, borad prices out of date	a simple introduction to FPGAs, their role, their limitations and promise with some mention of hardware description languages
2/22/2014	pdf, xlsx	soft uP	JCB	spread sheet	open cores	https://opencores.org/projects/up_core_list/	Web page	An inventory of soft processor cores. Processor project at www.opencores.org	https://github.com/jimbrake/cpu_soft_cores	An Inventory of mostly open-source Soft Core Processors. Although many have FPGA stats, many do not. Very large spreadsheet
3/16/2006	ppt	aging aircraft	JCB	info	Aging Aircraft	https://books.google.com/books/about/9th_Joint_FAA_DoD_NASA_Conference_on_Agi.html	Git hub	Condition Based Monitoring and Prognostics Approach	OnBoard Software Inc. paper, recommends LSTM NN as beining most suitable for CBM	Convolutional Nets can learn feature detectors; LSTM Nets can handle variable time delays; LSTM Nets comparable in performance to biological models; LSTM can learn fault conditions
2/15/2006	ppt	FPGA	JCB	info	On Board		Git hub	Introduction to Programmable Logic as Software Process	Presented to SASPIN	FPGA 101 and its process aspect
4/8/2005	ISE	uP Arch	JCB	report	open cores	https://opencores.org/projects/lem1_9min	Web page	Logic Emulation Machine Processor project at www.opencores.org & github.com/jimbrake/lem1_9min	Four new variants of LEM1_9 are now implemented:	Small soft core processors that operate on a single bit (or four bits) of data at a time. Can be used for logic simulation, software interrupt handlers, low resource soft-core processing and BCD calculators.
11/29/2004	pdf	FPGA	JCB	info	Trinity Un		Git hub	Trinity University classroom presentation: FPGA RAD Process for micro-controller design	LEM1_9min talk	Design & Implement a Custom Micro-Controller in One Week or Less
6/27/2004	pdf	NN	JCB	info	Santa Fe		Git hub	**Use of Neural Models for Cognitive Processing**	2004 Sandia-UNM Cognitive Systems Workshop	Results of a feasibility study show that system level neuron and synapse models can be implemented in affordable scalable real-time systems
1/8/2004	pdf	EDA	JCB	info	Austin Consuta		Git hub	Alternate Digital Design Languages		Talk on Confluence language
1/8/2004	pdf	EDA	JCB	info	Austin Consuta		Git hub	Alternate Digital Design Languages		Talk on Confluence language
7/10/2003	pdf	uP Arch	JCB	info	IEEE Austin	https://r5.ieee.org/ctx-cs/event-archives/	Git hub	Six, no! Eight, no! Eleven Memories for Computer Architecture	dull subject	The first six memory mappings are architectural, they are distinct on a logical basis, but can be folded into one or more physical renderings in various ways for cost and performance reasons
1/10/2003	doc	NN	JCB	info	Laser Lab		Git hub	Real-Time Digital Simulation of the Human Nervous System	Use of web links in slides went well	The objective is to study the feasibility of a real-time system level simulation of the human brain.
3/17/2002	doc	fltg-pt	JCB	info	C16		Git hub	An Engineer’s rework of IEEE-754 Floating-Point		
1/1/2002	doc	fltg-pt	JCB	info	Austin Consuta		Git hub	An Engineer’s rework of IEEE-754 Floating-Point		
3/1/2001	doc	uArch	JCB	note	Open Channel		Git hub	In the Limit		Sharing a 64-bit address space
4/25/1999	doc	fltg-pt	JCB	info	IEEE Austin		Git hub	The Case for Alt-754 Floating-Point	Presented to IEEE Austin consultants group	The floating-point advocated in this paper, herein called alt-754, was motivated by certain hardware and software complexities of IEEE-754.
4/6/1999	pdf	fltg-pt	JCB	patent	USPTO	https://patents.google.com/patent/US5892697A/en	Web page	**US Patent 5,892,687: Method and Apparatus for Handling Overflow and Underflow in Processing Floating-Point Numbers.**	filed 12/19/1995, currently cited by 71 other patentss	means for converting the resulting floating-point value from the floating-point register representation to the random access memory representation
2/1/1994			JCB		San Jose		Web page	Subpixel resolution with steerable filters. SPIE/IS&T Symposium on Electronic Imaging, San Jose CA, Feb 94.	web search finds paper, hangs	The paper relates the approach taken to biological vision and its characteristic of hyperacuity. And to the subject of model building and model fitting.
10/1/1991	scan pdf	Forth Journ	JCB	paper	Fourth Journal	https://dl.forth.com:8443/jfar/vol3/no2/article13.pdf	Web page	An alternate Forth dictionary structure		The data structures used for definitions and the word search of Forth can facilitate various utilizations of the same. My goal is completeness and efficiency.
5/1/1991			JCB					Brakefield, J.C. 1991. Challenges for Forth. Proceedings of SigForth 1991, San Antonio, TX, May 91.		
3/7/1991	pdf	Forth	JCB	paper	Forth worksh	search on "Brakefield Challenges for Forth"		Challenges for Forth	never submitted for publication, mystery as to how got published	ways for Forth to progress beyond it's 16-bit roots
8/1/1988	scan pdf	Laser Lab	Zuclich etal	report	DTIC	https://apps.dtic.mil/sti/citations/ADA200528	Web page	Research on the ocular effects of laser radiation: executive summary, SAM-TP-88-8, Sep 88.	Zuclich, J.A., R.D. Glickman, D.C. Varner, W.D. Kosnik, J.C. Brakefield	evaluate the bioeffects of laser radiation in order to quantify threats, primarily losses of visual function transient or permanent
6/1/1986	docx	uP Arch	JCB	paper	Fourth Journal		Git hub	Signal space, address space, & symbol space	philosphical, one of my best "triples". **Incomplete docx**	conjures up "spaces" for binary signals, computer addresses & verbal thoughts as mathematical frameworks for binary circuits, computer programs & ideas

10/1/1985	pdf	Forth	JCB	talk	Rochester Forth Conf		Github	An Alternate Forth Dictionary Structure		The data structures used for definitions and the word search of Forth can facilitate various utilizations of the same. My goal is completeness and efficiency.
6/1/1984	scan pdf	user interface	JCB	paper	DECUS Cincinnati		Github	**Brakefield, J.C. 1984. A RT-11 Fortran prompting library. Proceedings of the Digital Equipment Computer Users Society, p. 411.**	Standing room only with people down the hall	A Fortan subroutine library that greatly facilitates programming the user interface. The prompting routines accept a default value, upper and lower limits, a prompt stringm and the conversion radix. There routines prompt the user for a new value, validate and modify the value, and return a code reflecting the user response.
2/1/1983	pdf	uP Arch	JCB	paper	Open Channel	search on "ACM James Brakefield", free	Github	Address space unification	Virtual communications, Extensible machine language, The programmer's algebra	Computers show man's tendency to isolate things that are different in nature and later, as they are better understood, to unify these differences under a more general category.
12/1/1982	pdf	Forth	JCB	paper	Sigarch	search on "ACM James Brakefield", free	Github	Talk on interpreters	Forth generalizations, has the "C as bastard Pascal" comment	different kinds of inner interpreters for stack machines (Forth)
6/1/1982	pdf	uP Arch	JCB	paper	Sigarch	search on "ACM James Brakefield", free	Github	**Just what is an op-code?: or a universal computer design**	most cited of my papers	extensible machine langague
6/1/1982	pdf	uP Arch	JCB	paper	Sigarch	search on "ACM James Brakefield", free	Github	From the other side of the Alantic: how to improve upon the MU5 design	includes my address descriptors	where the MU5 architecture leads
10/1/1980	pdf	Sys Arch	JCB	paper	Sigarch	search on "ACM James Brakefield", free	Github	The peripheral bus	strobed data bus	microprocessor pherpherial bus
10/1/1980	pdf	uP Arch	JCB	paper	Sigarch	search on "ACM James Brakefield", free	Github	Is 32 bits of address too much?	my address descriptor idea	memory descriptor encoding for unsigned, signed and floating-point, bit, two bit and four bit alignment, power of two sizes
3/1/1979	scan pdf	Laser Lab	Zuchlich etal	report	DTIC	https://apps.dtic.mil/sti/citations/ADA068022	Web page	Research on the ocular effects of laser radiation	Zuclich, J.A., G.A. Greiss, J.M. Harrison, and J.C. Brakefield	ELECTRONICS AND SOFTWARE FOR THE VISUAL STIMULUS LAB
10/1/1977	txt	fltg-pt	JCB & Matt Quinn	paper	Huntsville	https://ntrs.nasa.gov/citations/19780042284	Web page	Variable length data formats. Data Management Symposium; Huntsville, AL; Oct 1977 Proceedins p. 243-253.	J. C. Brakefield and **M. J. Quinn**	All the sundry floating-point formats I had collected at the time
1/1/1972	scan pdf	fltg-pt	JCB	paper	Sigarch	https://github.com/jimbrake/Slides-Papers-Reports	Github	An Optimal Floating Point Format	grad student at UW Madison	Floats with exponent and mantissa signs in the middle allowing zero extension on both ends
4/1/1978	scan pdf		Zuchlich etal	report	DTIC	https://apps.dtic.mil/sti/citations/ADA068022	Web page	1978. Research on the ocular effects of laser radiation. Technology Incorporated, Annual Report, Contract F33615-77-C-0615, USAF School of Aerospace Medicine.	Zuclich, J.A., G.A. Greiss, J.M. Harrison, and J.C. Brakefield	
						https://www.forth.com/forth-book		Archive: Journal of Forth Application and Research (JFAR)	volumes 1, 2 & 3; from Forth Inc.	
These seven papers are available free from ACM. Three others are listed and not free.						search on "ACM James Brakefield", free		Brakefield's ACM publications, citations and downloads	Many of the ACM papers were first given as DECUS talks	7 citations, 1339 total downloads, 1980 to 1991

Column A	Y if in directory "each_by_year" and slides or paper present	
Column B	Date	presentation date or publication date
Column C	Format	powerpoint, PDF, txt, scanned pdf, docx, doc, xlsx, xilinx ISE project
Column D	Topic	one or two words
Column E	Author	JCB: James C. Brakefield, others as listed in comments
Column F	Nature	info (STEM level presentation), course, paper, patent, report
Column G	Where	Where presented, often IEEE Lonestar section at LMAG or Computer chapter
Column H	Web Link	Web page for paper or presentation
Column I	location	Location of slides/paper: listed Web page, Github (github/jimbrake), opencores.org, other
Column J	Title	Web page title and pptx file title may differ
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