An Artistic Genealogy of Hugh Le Caine 1939–1989

	HUGH LE CAINE *1914 (Port Arthur ON)	TORONTO BRANCH — University of Toronto, Studio "A" and Studio "C" Arnold Walter / Myron Schaeffer *1902 (Moravia, Austr-Hung) *1908 (Barberton OH, USA)	Paul Pedersen *1935 (Camrose AB)	Robert Aitken *1939 (Kentville NS)	Norma Beecroft *1934 (Oshawa ON)
1939	graduates from Queen's University (Kingston)				
1940	granted position at NRC				
1941					
1942					
1943	develops the **Electronic Sackbut** at home (1943–45)				
1944					
1945					
1946					
1947					
1948	prototype of the **Sackbut**; sent by NRC to Birmingham to study PhD in Nuclear Physics				
1949					
1950					
1951					
1952	returns to Ottawa, continues working in his home lab; **Coded Music Apparatus** (1952–55)	Walter Dir. Music Faculty (1952–68)			private studies with John Weinzweig (1952–58)
1953	lectures at NRC to staff (fall 1953) and public (spring 1954)				
1954	**founds ELMUS** at NRC (Ottawa); works full-time at NRC				works at CBC as script assistant, later music consultant
1955	"Dripsody" composed on **Multi-track**; **Touch-Sensitive Organ** (1955–57) presented at Trade Fair				
1956					president of CLC's concert committee (1956–57)
1957	1957 stereo model of **Multi-track**	Walter invited by HLC to visit NRC lab	BA in Music from University of Saskatchewan		captivated (~'56–57) by Ussachevsky's "Sonic Contours"
1958	lectures at Uni of Toronto		one of 1st students to work in precursor to UTEMS, studio run by Walter with equipment from NRC		studies at Tanglewood (CA USA) with Foss/Copland
1959	**Oscillator Bank**; **Spectrogram**, a light-sensitive controller	Walter, with HLC's help, **founds UTEMS**, hires Schaeffer as Dir. (1959–65)		student of Schaeffer at UTEMS	studies in Rome/Germany (1959–62) with Petrassi/Maderna
1960					
1961	1961 model of **Multi-track** has 10 stereo heads		Master of Music from UofT; Music staff Parkdale Collegiate Institute (Toronto)	BMus from UofT	
1962	**Level Control Amplifier**; **Adjustable Filter**; **Aleaophone**; "Nocturne" uses the **Conductive Keyboard**		Music Dir. Augustana Univ. College, Camrose AB (1962–64)	"Noesis" composed using HLC instruments	attends Schaeffer's clases; returns to CBC-TV as Casting Dir., later Progr. Organizer (1962–63)
1963				"Music for Flute and Electronic Tape" uses HLC instruments	Staff Producer at CBC Radio for New Music
1964	**Function Generator**; **Ring Modulator**; **Device for Expansion and Compression**; 1964 model of **Multi-track**			MMus Composition from UofT; "Music for Hamlet" composed using HLC instruments	works with Davidovsky at CPEMC; "From Dreams of Brass" for narrator, choir, orchestra and tape composed using HLC instruments
1965	**Envelope Shaper**; **Tone Mixture Generator**; works with Ciamaga on **SSSG** (1965–68)	† Myron Schaeffer		diploma from Conservatorio di Santa Cecilia	
1966			Faculty at McGill Music		
1967	prototype of the **SSSG**, forerunner of sequencer, featured at Expo '67; more compact **Multi-track**, controlled with printed circuit keys				"Two Went to Sleep", for flute, voice, percussion and tape, composed using HLC instruments
1968	**Sonde** can generate 200 sine waves simultaneously			founding Artistic Dir. (1968–70) of Music Today at the Shaw Festival	
1969	**Sackbut Synthesizer** (1969–71) has integrated circuits, 7-octave range				continues freelance work for radio as producer and commentator on contemporary music
1970	**Polyphonic Synthesizer**, voltage-controlled, the most comprehensive analogue synthesizer available		PhD from UofT; Polyphonic Synthesizer, built at Pedersen's request, is delivered to McGill EMS		
1971			Dir. McGill EMS (1971–74); "For Margaret…" composed using HLC Polyphonic Synthesizer	co-founds New Music Concerts with Beecroft, Artistic Dir. (1971–2011…); tape part for "Kebyar" composed with SSSG and Oscillator Bank	co-founds New Music Concerts with Aitken, President (1971–89)
1972	**Paramus** (1972–74), hybrid, computer-controlled system		"Paulution" composed using HLC Polyphonic Synthesizer		
1973		† Arnold Walter (Toronto)			"Rasas II" for contralto, chamber ensemble and tape composed using HLC instruments
1974	resigns from NRC after learning his project won't be funded after his retirement		Associate Dean of McGill Music Faculty (1974–76)		"Rasas III" for soprano, chamber ensemble and tape composed using HLC instruments
1975					"Piece for Bob" for flute + tape uses HLC instruments and Jaeger's OUTPERFORM programme
1976			Dean of McGill Music Faculty (1976–1986)		award for documentary "The Computer in Music"; "Collage '76" for flute, ensemble + tape composed using HLC instruments
1977	dies of injuries sustained in motorcycle accident the previous year				
1978				associate professor, University of Toronto	
1979					
1980					
1981				founding Artistic Director of Music at Shawnigan	
1982					
1983					
1984					teaches courses in electronic music at York (Toronto, 1984–87)
1985				Dir. (1985–89) of advanced studies in music at the Banff Centre	
1986					
1987					
1988				professor of flute, Hochschule für Musik, Freiburg (Germany)	
1989					

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(University of TORONTO Branch)

	Gustav Ciamaga	Richard Henninger	David Jaeger	James Montgomery	Gayle Young
	*1930 (London ON)	*1944 (Pasadena CA, USA)	*1947 (Green Bay WI, USA)	*1943 (Ravenna OH)	*1950 (St. Catherine's ON)
1939					
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1950					
1951	studies at UWO (London, 1951–54)				
1952					
1953					
1954	studies at UofT (1954–56)				
1955					
1956					
1957					
1958	MFA from Brandeis in Composition				
1959	planning of Brandeis studio, some acquisitions				
1960	correspondence with HLC (~1960–61)				
1961	**founds Brandeis EMS**				
1962					
1963	appointed to UofT Music Faculty				
1964					
1965	Dir. UTEMS (1965–77); works with Le Caine on SSSG				
1966		BA Composition Pomona College	Bachelor's at Univ. Wisconsin Music (1966–70)		
1967		grad student of Ciamaga at UTEMS			
1968	Chair of Composition Dept.	MMus UofT; Faculty at UofT under Ciamaga (1968–74)			
1969		"Reflections…" is a "grand tour" of potential of HLC instruments	reads SSSG article by Ciamaga/Gaburo		
1970	works in several European studios on sabbatical	Ciamaga/Gaburo's Piper system inspires move towards computer music	visits UTEMS' "marvellous, pristine collection" of HLC instruments; "Bwamerail" + "Crunch" use HLC instruments; duo with Montgomery	Jaeger and Montgomery form Possibilities Portmantaux, live electronic duo	
1971		**assists founding of Ontario College of Education EMS** (Natalie Kuzmich)	Ciamaga student at UTEMS, helps write + install OUTPERFORM (1971–72); co-founds CEE; "Space to Move Around In" for live actor & tape uses HLC instruments	student of Ciamaga at UTEMS; co-founds CEE (Jaeger, Grimes, Lake, Montgomery); "CRASH X 7" and "Ton Son Nhut Binh Hoa" composed using HLC instruments	
1972			freelance CBC, interviews Le Caine; Dartmouth Summer Electr. Institute; MMus Comp. UofT	MMus UofT	
1973			joins CBC Music Dept.		
1974		studies at Stanford with John Chowning, continues in Composition DMA	assists Beecroft on "Piece for Bob" at UTEMS	founds Faculty of Education UofT EMS, Dir. (1974–78)	studies at York (Toronto, 1974–77)
1975			CEE Canadian tour	CEE Canadian tour	
1976					
1977	Dean of UofT Music Faculty (1977–84)		launches Two New Hours on CBC Radio		
1978			CEE and Gayle Young form Hugh Le Caine Project	CEE and Gayle Young form Hugh Le Caine Project	CEE and Gayle Young form Hugh Le Caine Project
1979			CEE European tour	CEE European tour	
1980					
1981					
1982					
1983	Acting Principal of RCMT (1983–84)				
1984					
1985					publishes LP of HLC "Compositions and Demonstrations" (CD in 1999)
1986					
1987				Artistic Dir. Music Gallery (Toronto) (1987–2005)	
1988					Editor of Musicworks
1989					publishes HLC bio, "The Sackbut Blues"

† 2011 (Toronto)

An Artistic Genealogy of Hugh Le Caine 1939–1989

	MONTRÉAL BRANCHES — McGill and Concordia Universities			KINGSTON BRANCH	INTERNATIONAL BRANCH
	István Anhalt	**Kevin Austin**	**alcides lanza**	**David Keane**	**Josef Tal**
	*1919 (Budapest, Hungary)	*1948 (London, UK)	*1929 (Rosario, Argentina)	*1943 (Akron OH, USA)	*1910 (Pinne, Poland)
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1956					
1957	visits NRC to meet Le Caine		family emigrates to Canada		
1958	visits Cologne studio				in Ottawa, more impressed by HLC instruments' potential for composition than other major EMS
1959	"Visiting Scientist" at NRC in summer; organizes 1st tape music concert in Canada at McGill				
1960	"Electronic Composition No. 3" composed using HLC instruments at NRC; McGill EMS preparations (1960–63)				
1961	works with RCA Mark II at CPEMC; "Electronic Composition No. 4" uses HLC instruments				**founds Centre for Electronic Music** (Jerusalem) with 1961 Multi-track
1962					HLC visits studio to service Multi-track
1963			studies at CLAEM, Instituto Di Tella		
1964	**founds McGill EMS**, Dir. (1965–71)				
1965			studies with Ussachevsky at CPEMC (1965–71); is told to go and meet HLC	MMus Composition at Ohio State (1965–67)	
1966			studio technician / teaches students in CPEMS (1965–71)		
1967	"Cento" (1967) for 12 speakers and tape composed using Multi-track	invited by Anhalt to "show off the EMS" for McGill Open House		moves to Canada	
1968			meets HLC at conference in Toronto		
1969	"Foci" (1969) for soprano, chamber ensemble and tape composed using HLC instruments	studies electronic music at McGill with Anhalt and Pedersen (1969–71)			
1970	EMS moves from Redpath St. Coach house to Royal VIctoria College (later becomes Strathcona Music Bldg.))	presents SSSG at NAC (Ottawa); Bachelor's from McGill		**founds Queen's EMS**, Dir. (1970–97)	
1971	moves to teach at Queen's (Kingston), Head of Music (1971–81)	**founds Sir George Williams University** (later Concordia) **EMS,** Dir. (1971~95); founds MetaMusic (1971–77), live EA improv ensemble at McGill	composition prof at McGill; "plectros III" for piano, synth and tape, and "eidesis III" for orchestra and tape composed using HLC instruments		
1972		Master's student of lanza at McGill (1970–73)	"penetrations VI" and "penetrations VII" for actress-singer + tape… composed using HLC instruments		
1973		McGill Master's "Piece for…" (1970–73), composed using HLC instruments + live electronics		Queen's EMS moves into new Harrison-LeCaine Building	
1974			Dir. McGill EMS (1974–2003)	naturalized Canadian	
1975	"La Tourangelle", 60-min work for ensemble + tape, composed using HLC instruments				
1976			naturalized Canadian		
1977					
1978		teaches at Queen's; builds 30+ Aries modular synth modules for Concordia EMS		"In Memoriam Hugh Le Caine", for tape	
1979					
1980				publishes "Tape Music Composition"	
1981					
1982		CECG/GEC launches series of tape music concerts (1982–2009)			
1983			founds GEMS (1983–2003) with Claude Schryer and John Oliver		
1984	retires from teaching at Queen's; publishes "Alternative Voices"				
1985					
1986		Founding legal member, along with Jean-François Denis, of the CEC			
1987			HLC instruments donated to Science/Tech Museum (Ottawa)		
1988					
1989					
	† 2012 (Kingston)				† 2008 (Jerusalem)

An Artistic Genealogy of Hugh Le Caine 1939–1989

			(Canadian + Key Int'l. Studios)	Hugh Le Caine Instrument Acquisitions			
	Electronic Music / EA Milestones	Compositions and Works	Founding of Studios (bold = HLC link)	Univ. of Toronto	McGill	Queen's	Jerusalem
1939							
1940							
1941							
1942							
1943							
1944		Halim El-Dabh (Egypt) — "The Expression of Zaar", 1st studio-produced "tape music"					
1945							
1946							
1947							
1948	Schaeffer coins the term "musique concrète"	Pierre Schaeffer — "Cinq études de bruits", earliest "musique concrète"					
1949							
1950		Pierre Schaeffer and Pierre Henry — "Symphonie pour un homme seul", musique concrète					
1951			COLOGNE — Studio für elektronische Musik by Herbert Eimert; PARIS — GRMC by Pierre Schaeffer/Pierre Henry; Columbia Music acquires 1st Ampex				
1952	Schaeffer publishes "À la Recherche d'une Musique Concrète"	Stockhausen's 5-channel "Gesang der Jünglinge" (1955–56) mixes voice recordings and electronic sounds; Ussachevsky — "Sonic Contours"					
1953	Schaeffer leaves GRMC	Jacques Tati's film "Les vacances de Monsieur Hulot", exaggerated sound effects					
1954			**OTTAWA** — ELMUS (NRC) by Hugh Le Caine				
1955		Lecaine — "Dripsody"	MONTRÉAL — Otto Joachim (private)				
1956		"Forbidden Planet" by Bebe & Louis Barron, 1st electronic soundtrack					
1957	Max Mathews creates MUSIC, early computer music programme		MURRAY HILL NJ — Bell Telephone Labs				
1958	RCA Mark II Synth in CPEMC		NEW YORK — CPEMC by Vladimir Ussachevsky and Otto Luening; PARIS — GRM by P. Schaeffer				
1959			**TORONTO** — UTEMS by Myron Schaeffer	Multi-track #1 (1955, 6 tapes/stereo heads)			
1960	Harald Bode designs Audio System Synthesiser, inspiration for Robert Moog	Stockhausen's 4-channel "Kontakte" (1958–60) for electronic sounds (Cologne); Anhalt — "Electronic Composition No. 3"	**WALTHAM** MA USA — Brandeis U by Gustav Ciamaga (VCA by HLC)				
1961		Anhalt — "Electronic Composition No. 4"; Bell Labs IBM 704 sings "Daisy Bell", earliest speech synthesis (accomp. Max Mathews)	**JERUSALEM** — Centre for Electronic Music by Josef Tal	Multi-track (1961)			Multi-track (1961)
1962			BUENOS AIRES — CLAEM by Alberto Ginastera				
1963	Don Buchla commissioned to design voltage-controlled instrument (San Francisco)	Pierre Henry — "Variations pour une porte et un soupir"; Ron Grainer — Dr. Who theme					
1964	Moog Modular Synthesizer prototype demonstrated at AES conference		**MONTRÉAL** — McGill EMS by Isván Ahhalt; STOCKHOLM — Elektronmusikstudion		Multi-track #4 (1964), Oscillator Bank, Spectrogram, keyboard controllers		
1965	production of customized modular Moog systems begins	Reich's political work "It's Gonna Rain" expoits dephasing effect of 2 tape machines run in parallel	VANCOUVER — Sonic Research Studio by R. Murray Schafer				
1966	Buchla 100, or "Buchla Box"		TORONTO — Royal Conservatory of Music studio by Samuel Dolin				
1967	Moog used at Monterey International Pop Festival (California); Expo '67 (Montréal) features several CAN electronic works + HLC instruments	Subotnik's "Silver Apples of the Moon", an LP-length work, uses modular voltage-controlled Buchla synthesizer; Anhalt — "Cento"	LONDON — Royal College of Music by Tristram Cary				
1968							
1969	Sun Ra uses Minimoog prototype	Wendy Carlos' "Switched-On Bach" using Moog popularizes Classical & electronic music; Henninger — "Reflections…"; Anhalt — "Foci"	QUÉBEC — Univ. Laval by Nil Parent	by 1969 has SSSG, Capacitance Keyboard	Moog Synth		
1970	at Expo '70 (Osaka) Stockhausen projects his electronic works 5 hrs/day for 6 months; Minimoog makes electronic music more portable	Kraftwerk formed in Düsseldorf	**KINGSTON** — Queen's EMS by David Keane; TORONTO — York Univ. EMS by James Tenney; Univ. of CALGARY EMS by Warren Rowley		Polyphonic Synthesizer; SSSG	Multi-track #5 (1967)	
1971	Buchla 500 is 1st digitally controlled analogue synth; CEE founded for live electronic music; EMS Synthi 100; EMS Synthi A is a synth in a suitcase	Pedersen — "For Margaret…"; Jaeger — "Bwamerail"; Anhalt — "Tourangelle"	TORONTO — Ontario College of Education EMS by Natalie Kuzmich; University of VICTORIA by Rudolf Komorous; HALIFAX — Dalhousie Univ. by Steve Tittle				
1972	Serge Modular Music System developed at CalArts (California); Synthi AKS is portable with keyboard and sequencer		LONDON — Univ. Western Ontario by Peter Clements; SASKATOON — Univ. of Sask. by Richard Wedgewood				
1973		Austin — "Piece for…"; Richard Hunt — "Acoustic Viola" for 4 channels uses Multi-track (~1973)	EDMONTON — Univ. of Alberta by Violet Archer (ca. 1973)				
1974		Kraftwerk uses Minimoog/Synthi AKS on "Autobahn"	OTTAWA — Careleton Univ. by David Piper				
1975		Bengt Hambraeus (McGill) —" Tides" uses HLC instruments	WINNIPEG — Univ. Of Manitoba				
1976			Univ. of GUELPH by Charles Wilson; Univ. of LETHBRIDGE (ca. 1976)				
1977	Buchla 100 is behind "voice" of R2D2						
1978			QUÉBEC — Conservatoire by Yves Daoust; WATERLOO — Wilfrid Laurier Univ. By Owen Underhill; MONTRÉAL — UQAM by Philippe Ménard				
1979							
1980			MONTRÉAL — Conservatoire by Yves Daoust; Univ. of WATERLOO David Harrison		Synclavier II		
1981		Kraftwerk's "Computerwelt" includes electronically generated vocals					
1982							
1983	Yamaha DX-7 Synthesizer; MIDI		MONTRÉAL — Univ. De Montréal by Marcelle Deschênes				
1984							
1985							
1986							
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1988							
1989							