

Future Computing 2024

**The Triumvirate of an Adaptive Criteria Weighting Methodology,
Isomorphic Comparator Similarity Measure, and Apropos High
Dimensional Data Cluster Validation Index Measures for the
Ascertainment of Bespoke Dynamic Fuzzy Lists**

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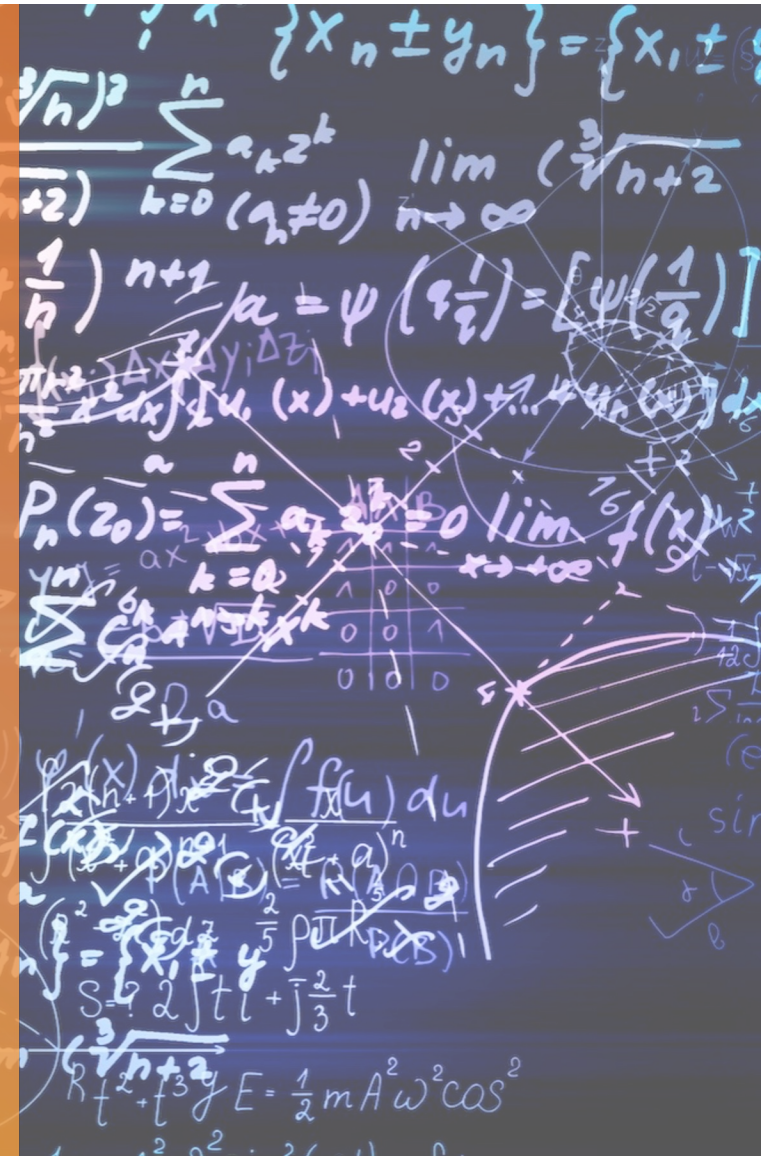


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$(1+x)^n = 1 + nx + \frac{n(n-1)}{2!}x^2 + \dots + (1+x)^n = a + nx$

$a = \psi\left(\frac{1}{n}\right) = \int \lim_{x \rightarrow 0} f(x) \frac{1}{x}$

$\int \left(\frac{r}{h}x\right)^2 dx = \int \frac{\pi r^2}{h^2} x^2 dx = \left[\frac{\pi r^2}{3h^2} x^3 \right]_{x=0}^{x=h} = \frac{\pi r^2}{3h^2} h^3 = \frac{\pi r^2 h}{3}$

$\left[\frac{1}{x^2} \right] = + P_n(z_0) = \sum_{k=0}^n a_k x^k = + P_n(z_0) = \sum_{k=0}^n c_k x^k$

$m_i = \int_a^b f(x) g(x) dx = \int_a^b f(t) dt = [F(t)]_a^b$

$\int_a^b f(g(x)) g'(x) dx = \int_{g(a)}^{g(b)} f(u) du$

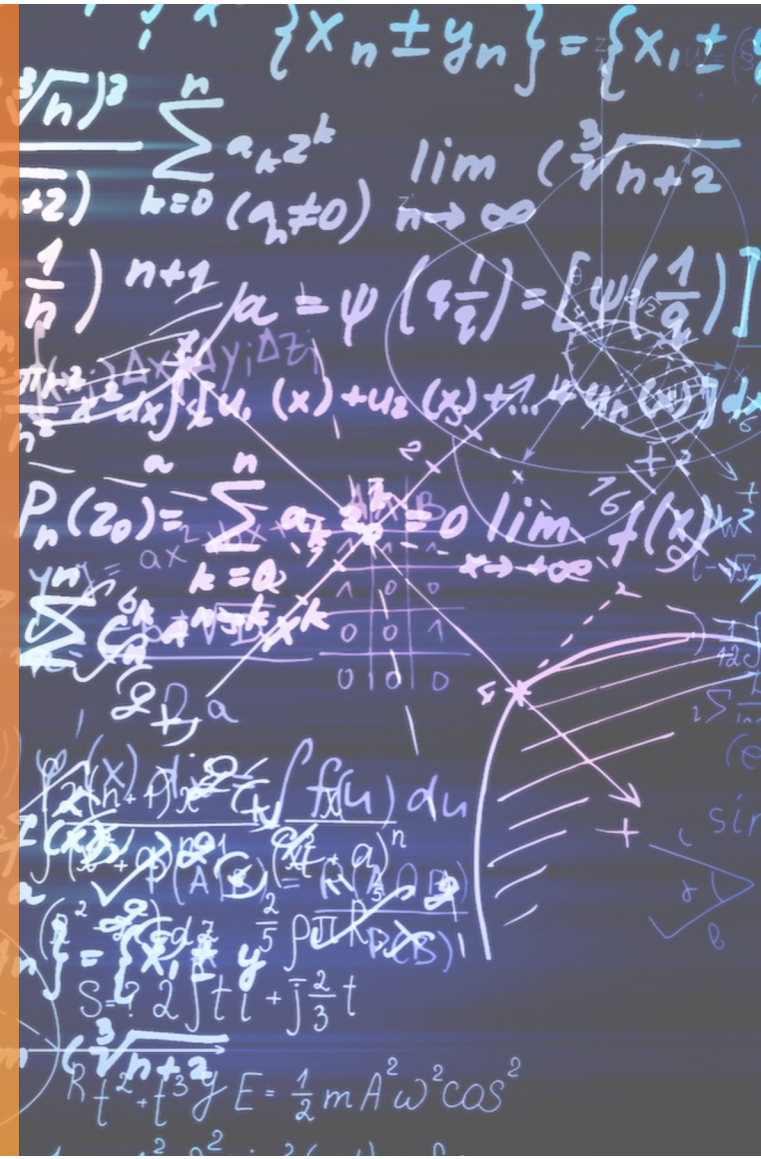
$P(A|B) = \frac{P(A \cap B)}{P(B)}$

$\frac{dx}{\cos^2 x} = \tan x$

$u = \cos(2x+3) \cdot (2x+3)$

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Introduction

The collage features several mathematical elements:

- Binomial Expansion:** $(1+x)^n = \sum_{k=0}^n \binom{n}{k} x^k$
- Area of a Circle:** $A = \pi r^2$
- Integration by Substitution:** $\int f(g(x)) \cdot g'(x) dx = \int f(u) du$
- Probability:** $P(A|B) = \frac{P(A \cap B)}{P(B)}$
- Algebraic Equations:** $ax^2 + bx + c = 0$ with solutions $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- Calculus:** $\frac{d}{dx} \cos^2 x = -2 \cos x \sin x$
- Geometry:** A 3D diagram of a rectangular prism with vertices labeled.
- Series:** $\sum_{n=0}^{\infty} x^n = \frac{1}{1-x}$ for $|x| < 1$

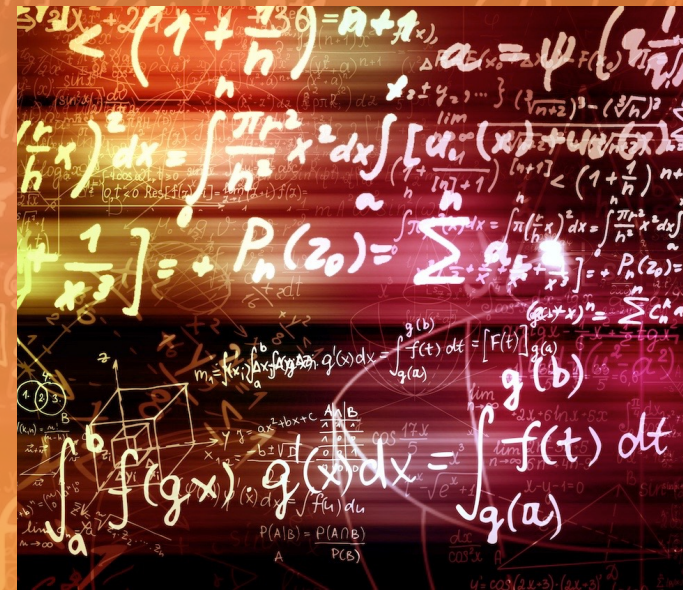


Source:
Allied Arts Guild, Menlo Park



Source:
Stanford University

Background/Refresher



Refresher #1

$\lim_{n \rightarrow \infty} \left(1 + \frac{x}{n}\right)^n = e^x$

$a = \psi\left(\frac{1}{n}\right) = \frac{1}{n}$

$\int_a^b f(g(x)) g'(x) dx = \int_{g(a)}^{g(b)} f(u) du$

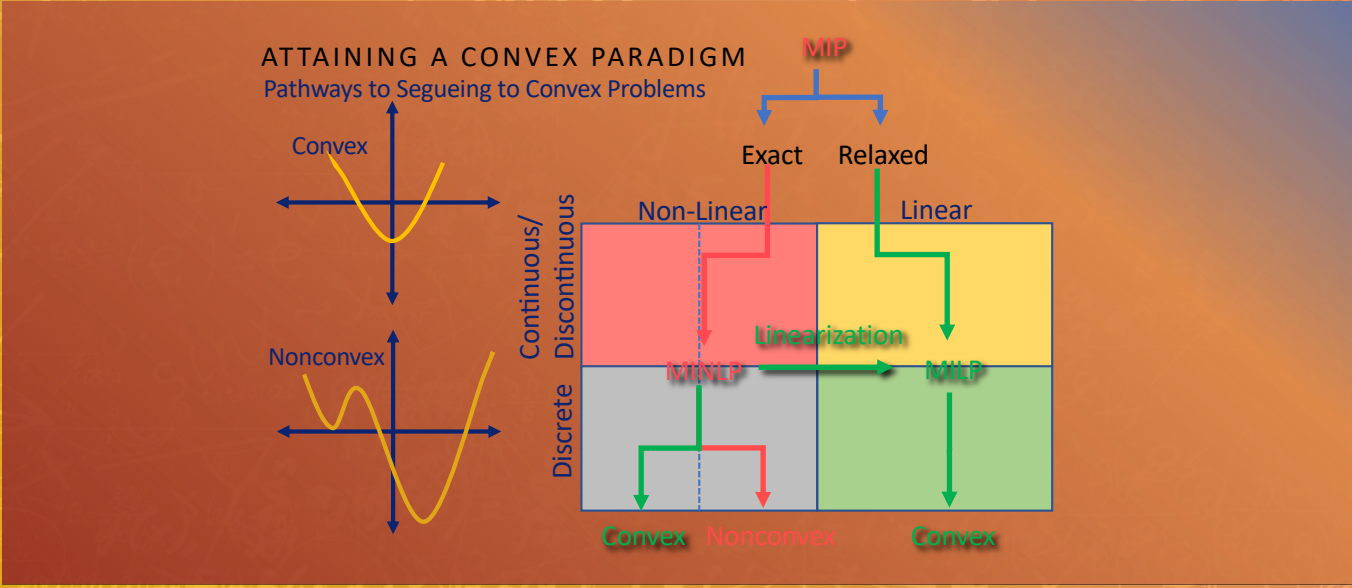
$\int_a^b f(x) dx = \int_a^b f(x) g'(x) dx = \int_{g(a)}^{g(b)} f(g^{-1}(u)) g^{-1}'(u) du$

$P(A|B) = \frac{P(A \cap B)}{P(B)}$

$\frac{d}{dx} \cos^2 x = 2 \cos x (-\sin x) = -2 \cos x \sin x = -\sin 2x$

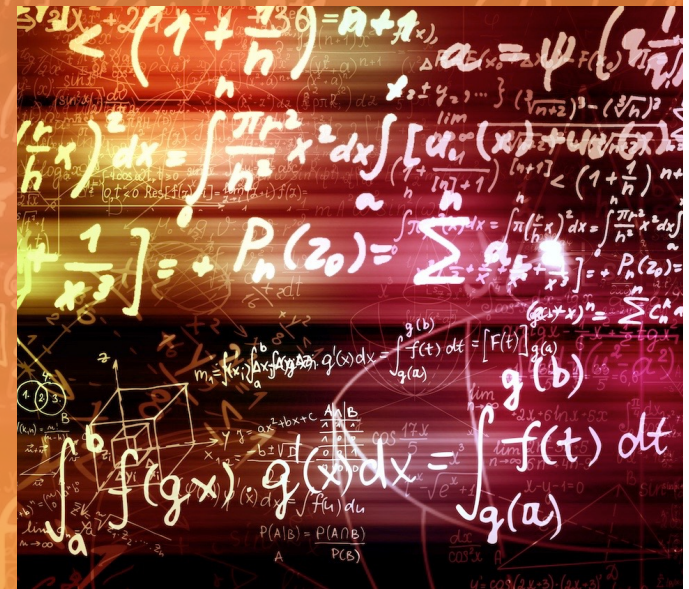
$$\{x_1 \pm y_1, \dots\} \quad \{x_n \pm y_n\} = \{x_1 \pm y_1, \dots, x_n \pm y_n\}$$

$$\lim_{n \rightarrow \infty} \left(\sqrt[n]{n+2} \right)^3 - \left(\sqrt[n]{n} \right)^3 = \frac{n}{n+1} < \left(1 + \frac{1}{n+1} \right)^{n+1} < \left(1 + \frac{1}{n} \right)^{n+1}$$



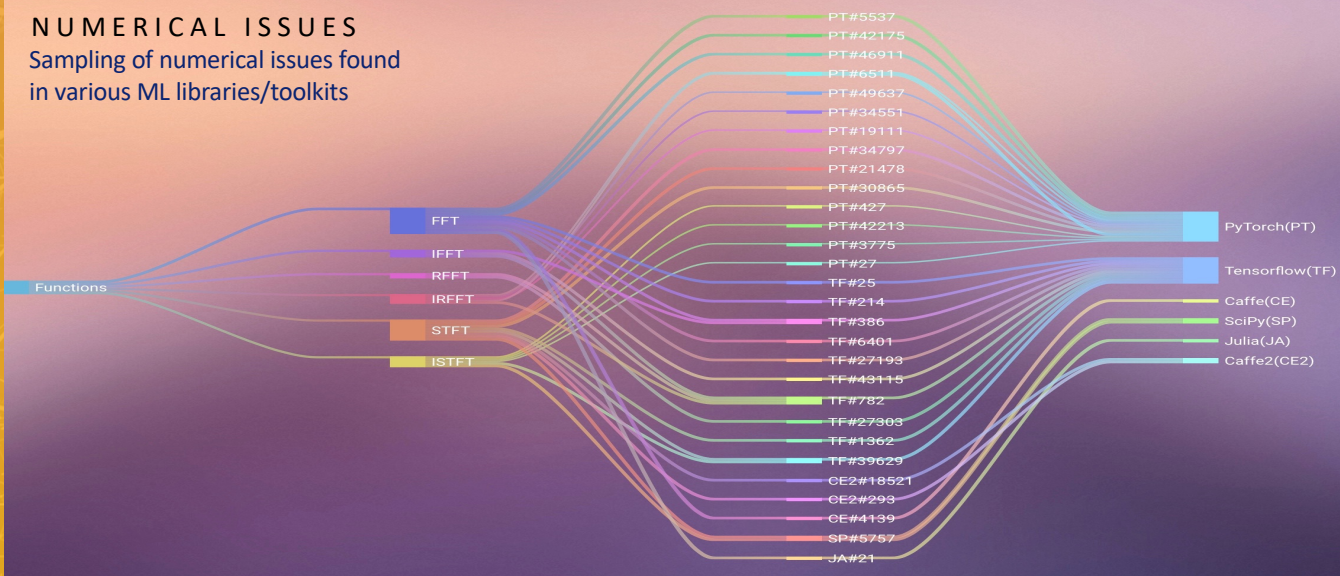
$$E = \frac{1}{2} m A^2 \omega^2 \cos^2$$

Refresher #2



NUMERICAL ISSUES

Sampling of numerical issues found
in various ML libraries/toolkits

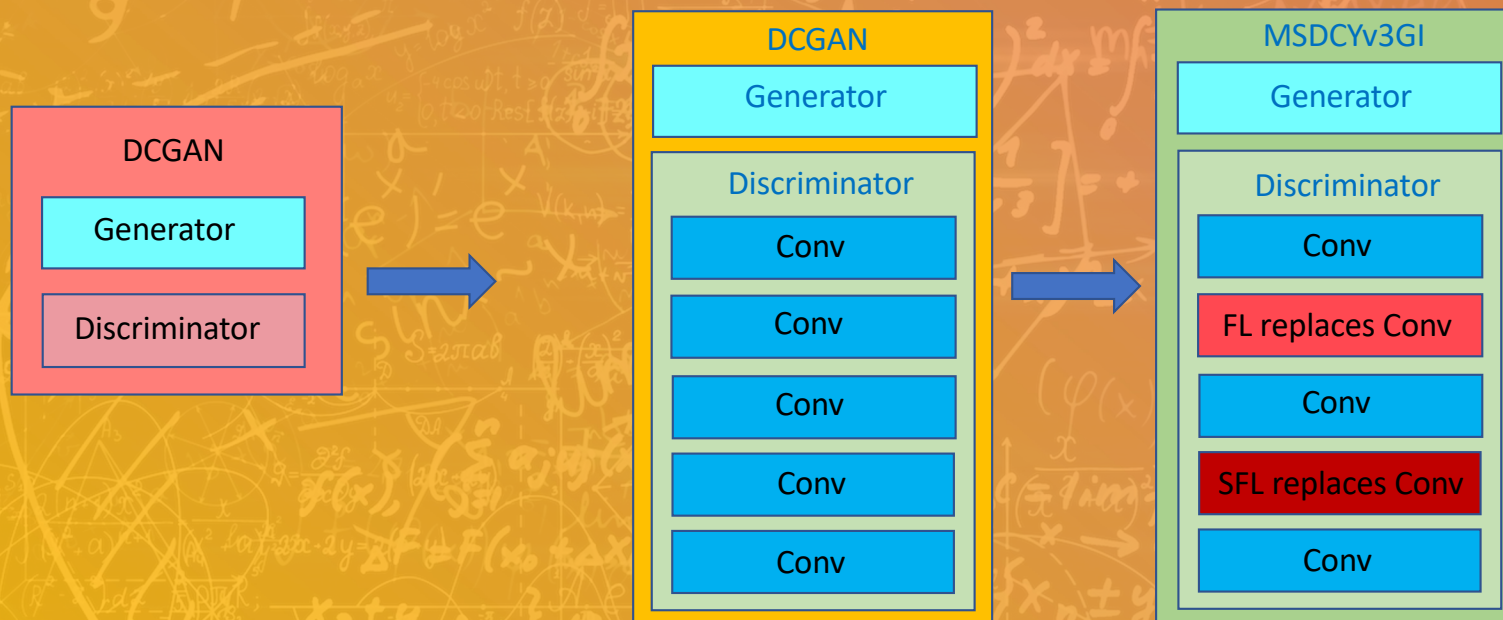


Refresher #3

This block contains a collage of mathematical formulas and diagrams. Visible elements include:

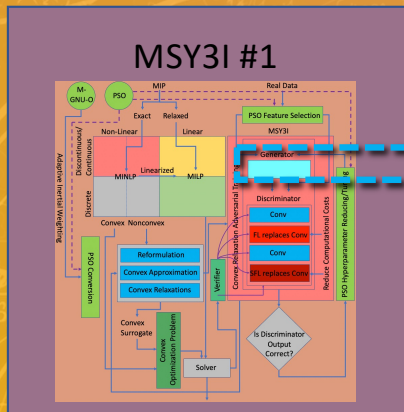
- Binomial expansion: $(1+x)^n = \sum_{k=0}^n \binom{n}{k} x^k$
- Integration by substitution: $\int_a^b f(g(x)) g'(x) dx = \int_{g(a)}^{g(b)} f(u) du$
- Probability: $P(A|B) = \frac{P(A \cap B)}{P(B)}$
- Algebra: $a^2 + b^2 = c^2$, $y = ax^2 + bx + c$
- Calculus: $\frac{d}{dx} \cos^2 x = -2 \cos x \sin x$
- Geometry: A 3D diagram of a rectangular prism with vertices labeled A, B, C, D, E, F, G, H.

Enhanced Numerical Stability Paradigm
A Specific DCGAN Implementation



Enhanced Numerical Stability Paradigm
RCR Architecture

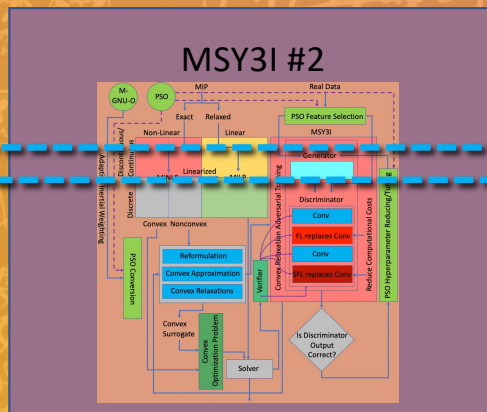
Key Solver for Convex Optimization Problems



PyTorch v0.4.1

RCR Paradigm #1

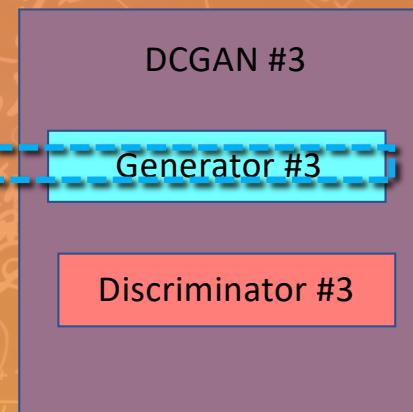
Key Solver for the
Modified Involved Functions



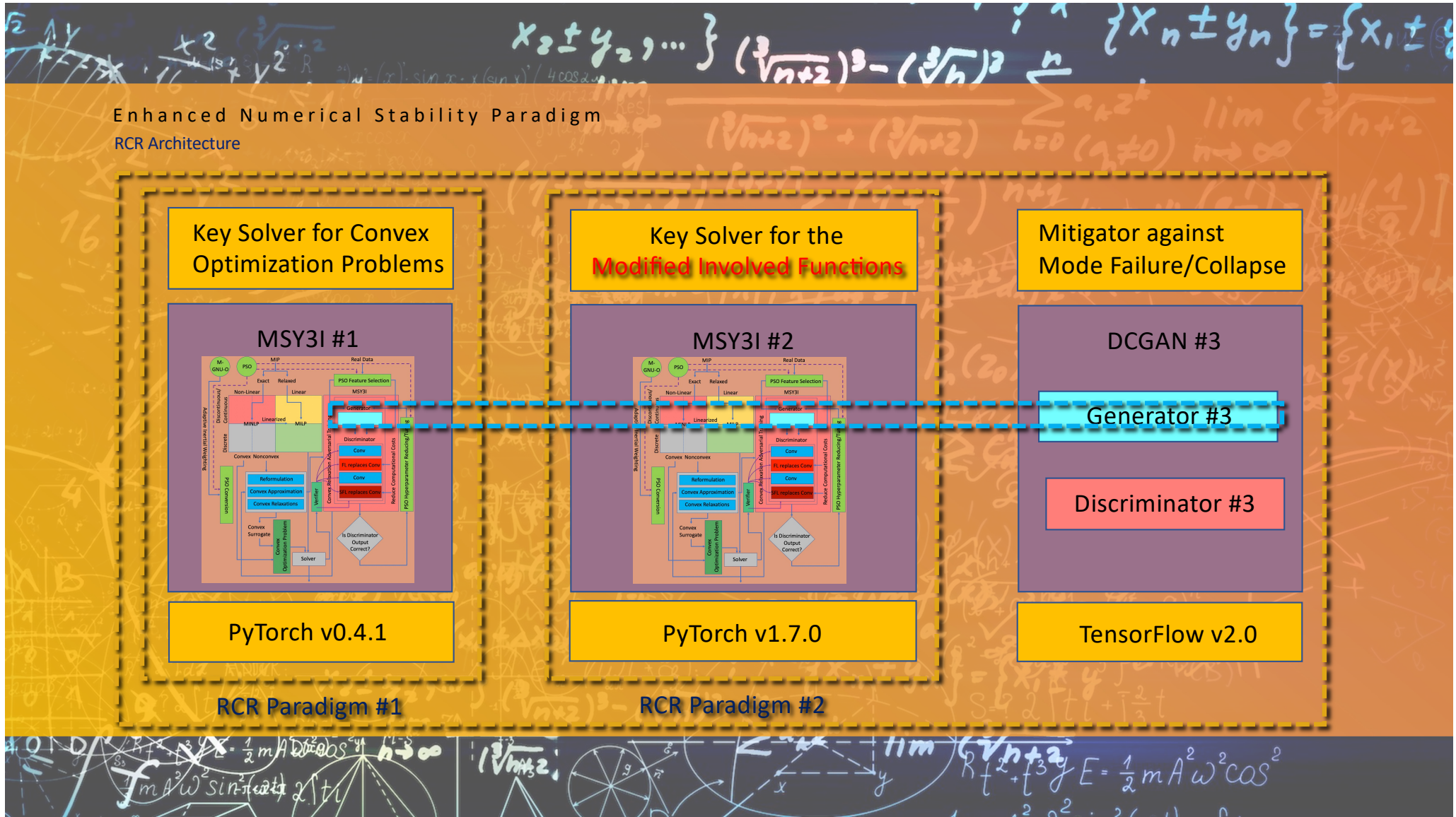
PyTorch v1.7.0

RCR Paradigm #2

Mitigator against
Mode Failure/Collapse



TensorFlow v2.0



Refresher #4

The collage features several mathematical elements:

- $$\int_a^b f(g(x)) \cdot g'(x) dx = \int_{g(a)}^{g(b)} f(u) du$$
- $$P(A|B) = \frac{P(A \cap B)}{P(B)}$$
- $$m_i = kx_i \int_a^b f(x) dx = \int_{g(a)}^{g(b)} f(t) dt = [F(t)]_{g(a)}^{g(b)}$$
- $$\int_a^b f(x) dx = \int_a^b f(x) dx$$
- $$P(A|B) = \frac{P(A \cap B)}{P(B)}$$
- $$u = \cos(2x+3) \cdot (2x+3)$$
- $$\frac{dx}{\cos^2 x} = \tan x$$
- $$y = ax^2 + bx + c$$
- $$V(x) = \frac{a}{(x-b)^2}$$
- $$m = \frac{A \cdot B}{A + B}$$
- $$b \pm \sqrt{b^2 - 4ac}$$
- $$\lim_{n \rightarrow \infty} \frac{1}{n} = 0$$
- $$z_1, z_2, \dots, z_n$$
- $$x = \frac{a+b}{2}$$
- $$y = \frac{a+b}{2}$$
- $$z = \frac{a+b}{2}$$
- $$w = \frac{a+b}{2}$$
- $$v = \frac{a+b}{2}$$
- $$u = \frac{a+b}{2}$$
- $$t = \frac{a+b}{2}$$
- $$s = \frac{a+b}{2}$$
- $$r = \frac{a+b}{2}$$
- $$q = \frac{a+b}{2}$$
- $$p = \frac{a+b}{2}$$
- $$o = \frac{a+b}{2}$$
- $$n = \frac{a+b}{2}$$
- $$m = \frac{a+b}{2}$$
- $$l = \frac{a+b}{2}$$
- $$k = \frac{a+b}{2}$$
- $$j = \frac{a+b}{2}$$
- $$i = \frac{a+b}{2}$$
- $$h = \frac{a+b}{2}$$
- $$g = \frac{a+b}{2}$$
- $$f = \frac{a+b}{2}$$
- $$e = \frac{a+b}{2}$$
- $$d = \frac{a+b}{2}$$
- $$c = \frac{a+b}{2}$$
- $$b = \frac{a+b}{2}$$
- $$a = \frac{a+b}{2}$$

EDA

NI

CNN: RCR LSTM DLNN

SOT

EDA = Enhanced Discernment Accuracy

NI = Numerical Implementation

CNN = Convolutional Neural Network

RCR = Robust Convex Relaxation

LSTM = Long Short-Term Memory

DLNN = Deep Learning Neural Network

SOT = Sequence of Transformations

SOT



SOT = Sequence of Transformations

NMF = Nonnegative Matrix Factorization

GCM = Gaussian Composite Model

ISM = Input Synthesis Model

MMF = Multiresolution Matrix Factorization

CORWWT = Corresponding Wavelet Transform

ECORWWT = Enhanced CORWWT

CWT = Continuous Wavelet Transform

Experimentation

Experimentation – Figure 1

The collage contains the following mathematical content:

- Binomial Theorem:** $(1 + \frac{1}{n})^n = 1 + n(\frac{1}{n}) + \frac{n(n-1)}{2!}(\frac{1}{n})^2 + \dots$
- Integral Calculus:** $\int_a^b f(g(x)) \cdot g'(x) dx = \int_{g(a)}^{g(b)} f(u) du$
- Probability:** $P(A|B) = \frac{P(A \cap B)}{P(B)}$
- Geometry:** A 3D coordinate system with axes x, y, z and a rectangular prism.
- Algebra:** $m = \frac{y_2 - y_1}{x_2 - x_1}$ and $y = ax + b$
- Calculus:** $\frac{d}{dx} \cos^2 x = -2 \cos x \sin x$
- Series:** $\sum_{k=1}^{\infty} \frac{1}{k^2} = \frac{\pi^2}{6}$



MULTIMOORA: Multi-Objective Optimization on the Basis of Ratio Analysis Method

CPRLD: Constriction Factor (CF)-Particle Swarm Optimization (PSO)-Robust Convex Relaxation (RCR)-Long Short-Term Memory (LSTM)-Deep Convolutional Neural Network (DCNN)

PA: Point Allocation

AHP = Analytical Hierarchy Process

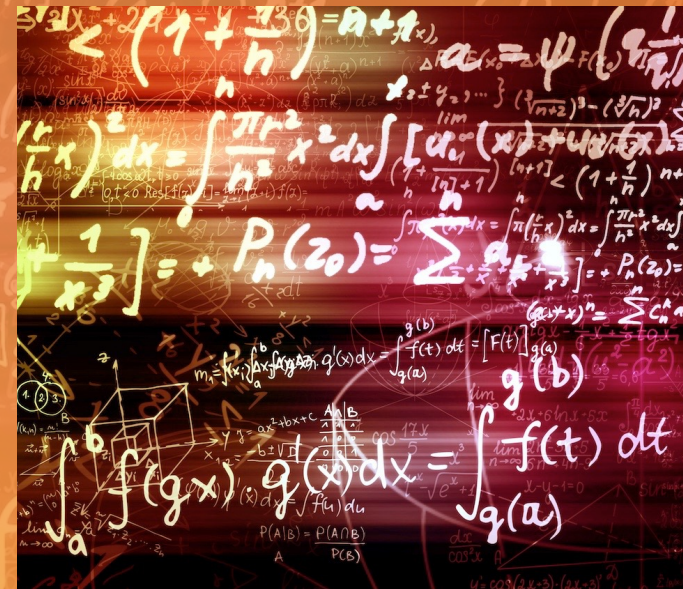
WASPAS = Weighted Aggregated Sum Product Assessment

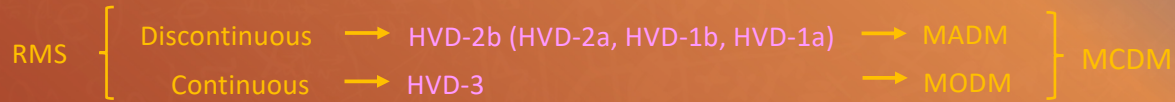
CRITIC: Criteria Importance through Intercriteria Correlation

TOPSIS: Technique of Order Preference by Similarity to an Ideal Solution

Fuzzy VIKOR: Višekriterijumsko Kompromisno Rangiranje

Experimentation – Figure 2





Experimentation – Figure 3



CPRLD with DCNN-3

Key Solver for
RCR Optimization
Problems

DCNN-1

PyTorch v0.4.1

Key Solver for
Modified Involved
Functions

DCNN-2

PyTorch v1.7.0

Key Solver for
the additional
Non-Convex
Problems Spawned
via the RCR

DCNN-3

PyTorch v0.4.1

Mitigator Against
Mode Failure/
Collapse

DCGAN

TensorFlow v2.0

CPRLD with DCNN-4

Key Solver for RCR Optimization Problems

DCNN-1

PyTorch v0.4.1

Key Solver for Modified Involved Functions

DCNN-2

PyTorch v1.7.0

Key Solver for Non-Convex Problems Spawned via the RCR

DCNN-3

PyTorch v0.4.1

Key Solver for AEC Counterpoising

DCNN-4

PyTorch v1.7.0

Mitigator Against Mode Failure/ Collapse

DCGAN

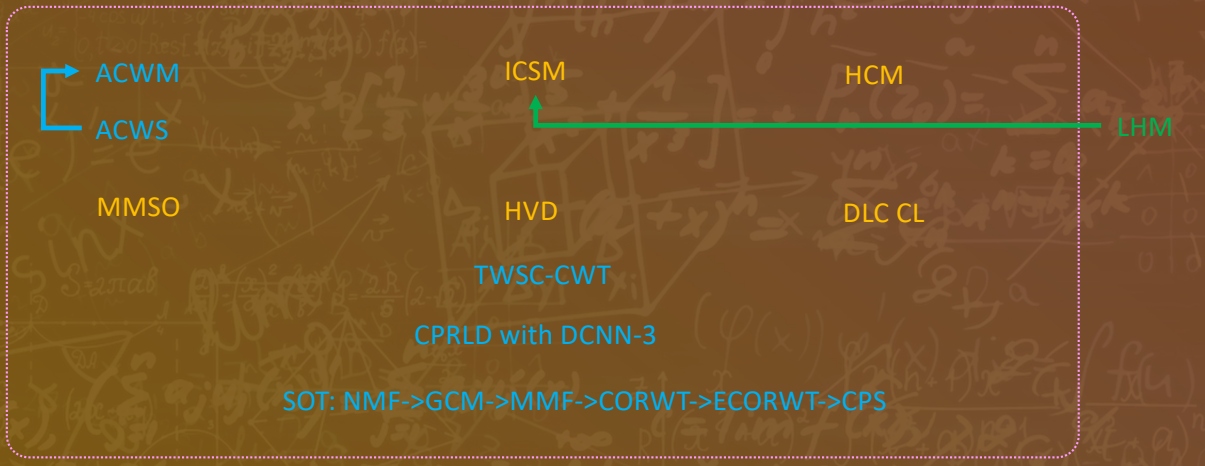
TensorFlow v2.0

Experimentation – Figure 4

The collage features several mathematical elements:

- $$\int_a^b f(g(x)) \cdot g'(x) dx = \int_{g(a)}^{g(b)} f(u) du$$
- $$P(A|B) = \frac{P(A \cap B)}{P(B)}$$
- $$m_i = kx_i \int_a^b f(x) dx = \int_{g(a)}^{g(b)} f(t) dt = [F(t)]_{g(a)}^{g(b)}$$
- $$\int_a^b \frac{1}{x^2} dx = \left[-\frac{1}{x} \right]_a^b = -\frac{1}{b} + \frac{1}{a}$$
- $$\int_a^b \frac{1}{x^3} dx = \left[-\frac{1}{2x^2} \right]_a^b = -\frac{1}{2b^2} + \frac{1}{2a^2}$$
- $$\int_a^b \frac{1}{x^4} dx = \left[-\frac{1}{3x^3} \right]_a^b = -\frac{1}{3b^3} + \frac{1}{3a^3}$$
- $$\int_a^b \frac{1}{x^5} dx = \left[-\frac{1}{4x^4} \right]_a^b = -\frac{1}{4b^4} + \frac{1}{4a^4}$$
- $$\int_a^b \frac{1}{x^6} dx = \left[-\frac{1}{5x^5} \right]_a^b = -\frac{1}{5b^5} + \frac{1}{5a^5}$$
- $$\int_a^b \frac{1}{x^7} dx = \left[-\frac{1}{6x^6} \right]_a^b = -\frac{1}{6b^6} + \frac{1}{6a^6}$$
- $$\int_a^b \frac{1}{x^8} dx = \left[-\frac{1}{7x^7} \right]_a^b = -\frac{1}{7b^7} + \frac{1}{7a^7}$$
- $$\int_a^b \frac{1}{x^9} dx = \left[-\frac{1}{8x^8} \right]_a^b = -\frac{1}{8b^8} + \frac{1}{8a^8}$$
- $$\int_a^b \frac{1}{x^{10}} dx = \left[-\frac{1}{9x^9} \right]_a^b = -\frac{1}{9b^9} + \frac{1}{9a^9}$$
- $$\int_a^b \frac{1}{x^{11}} dx = \left[-\frac{1}{10x^{10}} \right]_a^b = -\frac{1}{10b^{10}} + \frac{1}{10a^{10}}$$
- $$\int_a^b \frac{1}{x^{12}} dx = \left[-\frac{1}{11x^{11}} \right]_a^b = -\frac{1}{11b^{11}} + \frac{1}{11a^{11}}$$
- $$\int_a^b \frac{1}{x^{13}} dx = \left[-\frac{1}{12x^{12}} \right]_a^b = -\frac{1}{12b^{12}} + \frac{1}{12a^{12}}$$
- $$\int_a^b \frac{1}{x^{14}} dx = \left[-\frac{1}{13x^{13}} \right]_a^b = -\frac{1}{13b^{13}} + \frac{1}{13a^{13}}$$
- $$\int_a^b \frac{1}{x^{15}} dx = \left[-\frac{1}{14x^{14}} \right]_a^b = -\frac{1}{14b^{14}} + \frac{1}{14a^{14}}$$
- $$\int_a^b \frac{1}{x^{16}} dx = \left[-\frac{1}{15x^{15}} \right]_a^b = -\frac{1}{15b^{15}} + \frac{1}{15a^{15}}$$
- $$\int_a^b \frac{1}{x^{17}} dx = \left[-\frac{1}{16x^{16}} \right]_a^b = -\frac{1}{16b^{16}} + \frac{1}{16a^{16}}$$
- $$\int_a^b \frac{1}{x^{18}} dx = \left[-\frac{1}{17x^{17}} \right]_a^b = -\frac{1}{17b^{17}} + \frac{1}{17a^{17}}$$
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- $$\int_a^b \frac{1}{x^{20}} dx = \left[-\frac{1}{19x^{19}} \right]_a^b = -\frac{1}{19b^{19}} + \frac{1}{19a^{19}}$$
- $$\int_a^b \frac{1}{x^{21}} dx = \left[-\frac{1}{20x^{20}} \right]_a^b = -\frac{1}{20b^{20}} + \frac{1}{20a^{20}}$$
- $$\int_a^b \frac{1}{x^{22}} dx = \left[-\frac{1}{21x^{21}} \right]_a^b = -\frac{1}{21b^{21}} + \frac{1}{21a^{21}}$$
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- $$\int_a^b \frac{1}{x^{26}} dx = \left[-\frac{1}{25x^{25}} \right]_a^b = -\frac{1}{25b^{25}} + \frac{1}{25a^{25}}$$
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- $$\int_a^b \frac{1}{x^{28}} dx = \left[-\frac{1}{27x^{27}} \right]_a^b = -\frac{1}{27b^{27}} + \frac{1}{27a^{27}}$$
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- $$\int_a^b \frac{1}{x^{30}} dx = \left[-\frac{1}{29x^{29}} \right]_a^b = -\frac{1}{29b^{29}} + \frac{1}{29a^{29}}$$
- $$\int_a^b \frac{1}{x^{31}} dx = \left[-\frac{1}{30x^{30}} \right]_a^b = -\frac{1}{30b^{30}} + \frac{1}{30a^{30}}$$
- $$\int_a^b \frac{1}{x^{32}} dx = \left[-\frac{1}{31x^{31}} \right]_a^b = -\frac{1}{31b^{31}} + \frac{1}{31a^{31}}$$
- $$\int_a^b \frac{1}{x^{33}} dx = \left[-\frac{1}{32x^{32}} \right]_a^b = -\frac{1}{32b^{32}} + \frac{1}{32a^{32}}$$
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- $$\int_a^b \frac{1}{x^{60}} dx = \left[-\frac{1}{59x^{59}} \right]_a^b = -\frac{1}{59b^{59}} + \frac{1}{59a^{59}}$$
- $$\int_a^b \frac{1}{x^{61}} dx = \left[-\frac{1}{60x^{60}} \right]_a^b = -\frac{1}{60b^{60}} + \frac{1}{60a^{60}}$$
- $$\int_a^b \frac{1}{x^{62}} dx = \left[-\frac{1}{61x^{61}} \right]_a^b = -\frac{1}{61b^{61}} + \frac{1}{61a^{61}}$$
- $$\int_a^b \frac{1}{x^{63}} dx = \left[-\frac{1}{62x^{62}} \right]_a^b = -\frac{1}{62b^{62}} + \frac{1}{62a^{62}}$$
- $$\int_a^b \frac{1}{x^{64}} dx = \left[-\frac{1}{63x^{63}} \right]_a^b = -\frac{1}{63b^{63}} + \frac{1}{63a^{63}}$$
- $$\int_a^b \frac{1}{x^{65}} dx = \left[-\frac{1}{64x^{64}} \right]_a^b = -\frac{1}{64b^{64}} + \frac{1}{64a^{64}}$$
- $$\int_a^b \frac{1}{x^{66}} dx = \left[-\frac{1}{65x^{65}} \right]_a^b = -\frac{1}{65b^{65}} + \frac{1}{65a^{65}}$$
- $$\int_a^b \frac{1}{x^{67}} dx = \left[-\frac{1}{66x^{66}} \right]_a^b = -\frac{1}{66b^{66}} + \frac{1}{66a^{66}}$$
- $$\int_a^b \frac{1}{x^{68}} dx = \left[-\frac{1}{67x^{67}} \right]_a^b = -\frac{1}{67b^{67}} + \frac{1}{67a^{67}}$$
- $$\int_a^b \frac{1}{x^{69}} dx = \left[-\frac{1}{68x^{68}} \right]_a^b = -\frac{1}{68b^{68}} + \frac{1}{68a^{68}}$$
- $$\int_a^b \frac{1}{x^{70}} dx = \left[-\frac{1}{69x^{69}} \right]_a^b = -\frac{1}{69b^{69}} + \frac{1}{69a^{69}}$$
- $$\int_a^b \frac{1}{x^{71}} dx = \left[-\frac{1}{70x^{70}} \right]_a^b = -\frac{1}{70b^{70}} + \frac{1}{70a^{70}}$$
- $$\int_a^b \frac{1}{x^{72}} dx = \left[-\frac{1}{71x^{71}} \right]_a^b = -\frac{1}{71b^{71}} + \frac{1}{71a^{71}}$$
- $$\int_a^b \frac{1}{x^{73}} dx = \left[-\frac{1}{72x^{72}} \right]_a^b = -\frac{1}{72b^{72}} + \frac{1}{72a^{72}}$$
- $$\int_a^b \frac{1}{x^{74}} dx = \left[-\frac{1}{73x^{73}} \right]_a^b = -\frac{1}{73b^{73}} + \frac{1}{73a^{73}}$$
- $$\int_a^b \frac{1}{x^{75}} dx = \left[-\frac{1}{74x^{74}} \right]_a^b = -\frac{1}{74b^{74}} + \frac{1}{74a^{74}}$$
- $$\int_a^b \frac{1}{x^{76}} dx = \left[-\frac{1}{75x^{75}} \right]_a^b = -\frac{1}{75b^{75}} + \frac{1}{75a^{75}}$$
- $$\int_a^b \frac{1}{x^{77}} dx = \left[-\frac{1}{76x^{76}} \right]_a^b = -\frac{1}{76b^{76}} + \frac{1}{76a^{76}}$$
- $$\int_a^b \frac{1}{x^{78}} dx = \left[-\frac{1}{77x^{77}} \right]_a^b = -\frac{1}{77b^{77}} + \frac{1}{77a^{77}}$$
- $$\int_a^b \frac{1}{x^{79}} dx = \left[-\frac{1}{78x^{78}} \right]_a^b = -\frac{1}{78b^{78}} + \frac{1}{78a^{78}}$$
- $$\int_a^b \frac{1}{x^{80}} dx = \left[-\frac{1}{79x^{79}} \right]_a^b = -\frac{1}{79b^{79}} + \frac{1}{79a^{79}}$$
- $$\int_a^b \frac{1}{x^{81}} dx = \left[-\frac{1}{80x^{80}} \right]_a^b = -\frac{1}{80b^{80}} + \frac{1}{80a^{80}}$$
- $$\int_a^b \frac{1}{x^{82}} dx = \left[-\frac{1}{81x^{81}} \right]_a^b = -\frac{1}{81b^{81}} + \frac{1}{81a^{81}}$$
- $$\int_a^b \frac{1}{x^{83}} dx = \left[-\frac{1}{82x^{82}} \right]_a^b = -\frac{1}{82b^{82}} + \frac{1}{82a^{82}}$$
- $$\int_a^b \frac{1}{x^{84}} dx = \left[-\frac{1}{83x^{83}} \right]_a^b = -\frac{1}{83b^{83}} + \frac{1}{83a^{83}}$$
- $$\int_a^b \frac{1}{x^{85}} dx = \left[-\frac{1}{84x^{84}} \right]_a^b = -\frac{1}{84b^{84}} + \frac{1}{84a^{84}}$$
- $$\int_a^b \frac{1}{x^{86}} dx = \left[-\frac{1}{85x^{85}} \right]_a^b = -\frac{1}{85b^{85}} + \frac{1}{85a^{85}}$$
- $$\int_a^b \frac{1}{x^{87}} dx = \left[-\frac{1}{86x^{86}} \right]_a^b = -\frac{1}{86b^{86}} + \frac{1}{86a^{86}}$$
- $$\int_a^b \frac{1}{x^{88}} dx = \left[-\frac{1}{87x^{87}} \right]_a^b = -\frac{1}{87b^{87}} + \frac{1}{87a^{87}}$$
- $$\int_a^b \frac{1}{x^{89}} dx = \left[-\frac{1}{88x^{88}} \right]_a^b = -\frac{1}{88b^{88}} + \frac{1}{88a^{88}}$$
- $$\int_a^b \frac{1}{x^{90}} dx = \left[-\frac{1}{89x^{89}} \right]_a^b = -\frac{1}{89b^{89}} + \frac{1}{89a^{89}}$$
- $$\int_a^b \frac{1}{x^{91}} dx = \left[-\frac{1}{90x^{90}} \right]_a^b = -\frac{1}{90b^{90}} + \frac{1}{90a^{90}}$$
- $$\int_a^b \frac{1}{x^{92}} dx = \left[-\frac{1}{91x^{91}} \right]_a^b = -\frac{1}{91b^{91}} + \frac{1}{91a^{91}}$$
- $$\int_a^b \frac{1}{x^{93}} dx = \left[-\frac{1}{92x^{92}} \right]_a^b = -\frac{1}{92b^{92}} + \frac{1}{92a^{92}}$$
- $$\int_a^b \frac{1}{x^{94}} dx = \left[-\frac{1}{93x^{93}} \right]_a^b = -\frac{1}{93b^{93}} + \frac{1}{93a^{93}}$$
- $$\int_a^b \frac{1}{x^{95}} dx = \left[-\frac{1}{94x^{94}} \right]_a^b = -\frac{1}{94b^{94}} + \frac{1}{94a^{94}}$$
- $$\int_a^b \frac{1}{x^{96}} dx = \left[-\frac{1}{95x^{95}} \right]_a^b = -\frac{1}{95b^{95}} + \frac{1}{95a^{95}}$$
- $$\int_a^b \frac{1}{x^{97}} dx = \left[-\frac{1}{96x^{96}} \right]_a^b = -\frac{1}{96b^{96}} + \frac{1}{96a^{96}}$$
- $$\int_a^b \frac{1}{x^{98}} dx = \left[-\frac{1}{97x^{97}} \right]_a^b = -\frac{1}{97b^{97}} + \frac{1}{97a^{97}}$$
- $$\int_a^b \frac{1}{x^{99}} dx = \left[-\frac{1}{98x^{98}} \right]_a^b = -\frac{1}{98b^{98}} + \frac{1}{98a^{98}}$$
- $$\int_a^b \frac{1}{x^{100}} dx = \left[-\frac{1}{99x^{99}} \right]_a^b = -\frac{1}{99b^{99}} + \frac{1}{99a^{99}}$$

The ACWM-ICSM-HCM
Triumvirate Amalgam



DLC -> OLC Acceleration

I	II	III	IV	V	VI	VII	VIII	IX
MR	DLC	Min;Elbow	WB	$O(nN^2)$	✓	✓	✓	
BH	DLC	Max _{diff} ;Elbow	W	$O(nN)$				
DI	OLC	Max;Max;Max	WB	$O(nN^2)$		✓	✓	
PBM	OLC	Max;Max	WBD	$O(n(k^2+N))$				✓
TW	DLC	Max _{diff} ;Elbow	W	$O(nN)$				
PB	OLC	Max;Max	WB	$O(nN^2)$				✓

Reflections

This block contains a dense collage of mathematical content. At the top, there are binomial expansion formulas: $(1+x)^n = \sum_{k=0}^n \binom{n}{k} x^k$ and $(1-x)^n = \sum_{k=0}^n \binom{n}{k} (-1)^k x^k$. Below these are various integral formulas, such as $\int_a^b f(g(x))g'(x)dx = \int_{g(a)}^{g(b)} f(u)du$ and $\int_a^b \frac{f(x)}{g(x)} dx = \int_{g(a)}^{g(b)} \frac{f(u)}{g(u)} du$. There are also probability formulas like $P(A|B) = \frac{P(A \cap B)}{P(B)}$ and a diagram of a 3D cube with vertices labeled. The background is a mix of orange and dark red colors with faint mathematical symbols scattered throughout.

To summarize:

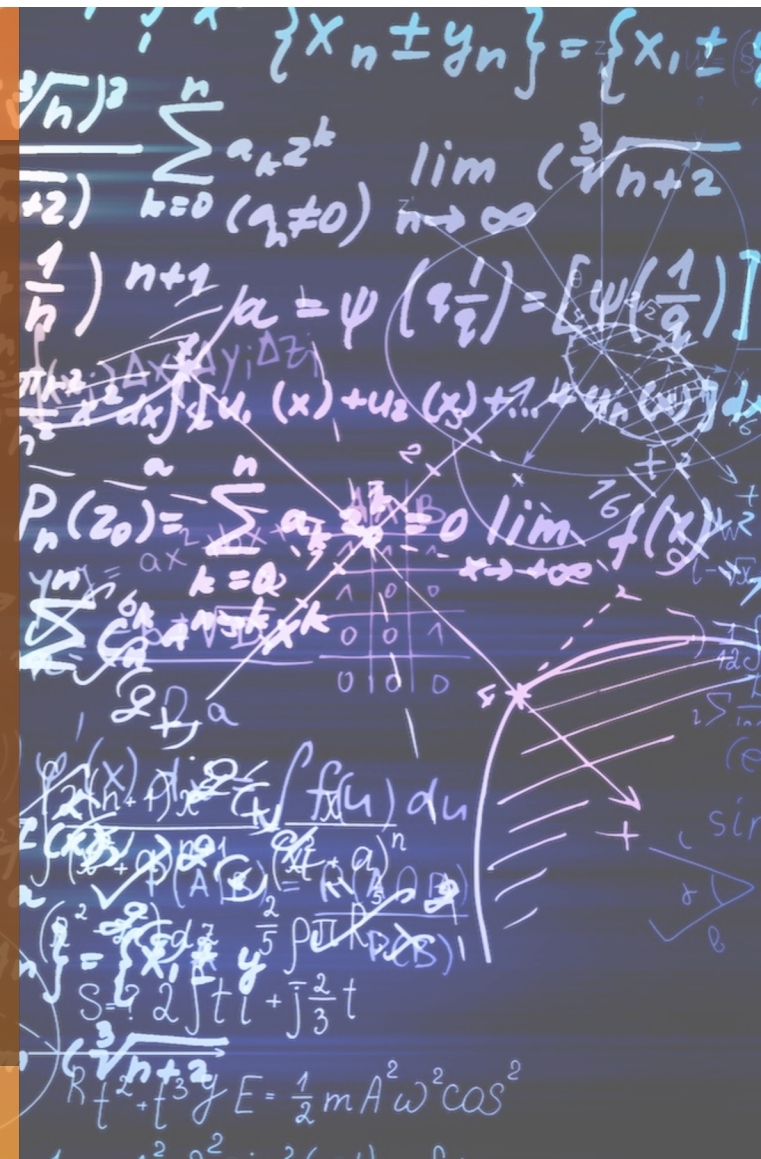
The potential of an enhanced discernment capability, as well as a **DLC -> OLC** acceleration opportunity, via a bespoke architecture and SOT, seems promising.

In particular, the **EDA -> NI -> SOT -> M2ED** progression seems robust.

As well, the **NI** via **CNN: RCR LSTM DLNN** seems to be a viable implementation.

In turn, the SOT via **NMF -> GSM -> ISM -> MMF -> CORWT -> ECORWT -> CWT** seems to be viable as well.

Future work will involve more quantitative experimentation in this area.



Future Computing 2024

**The Triumvirate of an Adaptive Criteria Weighting Methodology,
Isomorphic Comparator Similarity Measure, and Apropos High
Dimensional Data Cluster Validation Index Measures for the
Ascertainment of Bespoke Dynamic Fuzzy Lists**

Thank You!

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Future Computing
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