ChatGPT

Institutional Rotation Detection Methodology (GameStop 2014–2025 Case Study)

1. Early Institutional Accumulation Signals

To maximize early detection of institutional "rotation" (big investors moving in or out), the methodology first defines **key early signals of accumulation**. These are observable events or filings that often precede major moves in ownership:

- **Schedule 13D filings (and 13D/A amendments):** A Schedule 13D is filed when an investor crosses 5% ownership with an *active* intent (often activists). An initial 13D indicates a new high-conviction entry (often with stated plans to influence the company) [1]. Amendments (13D/A) can show increased stakes (further accumulation) or an exit (filing that holdings fell below 5%) [2]. For example, Scion Asset Management's 13D in April 2020 (5% stake in GME with an activist letter) was an early entry signal, and its 13D/A in May 2020 signaled a stealth exit below 5% [2]. Multiple 13D/As in short succession (or a switch from 13G to 13D) also indicate changing intent (passive to active) [3].

- **Schedule 13G filings:** Schedule 13G is filed by *passive* holders crossing 5%. While less aggressive than 13D, a new 13G (or steady 13G/A increases) by institutions can signal accumulation by index funds or long-term holders. For instance, large index funds (BlackRock, Vanguard, etc.) filing 13G amendments showing growing stakes may indicate quiet accumulation (though 13Gs often have longer reporting lag) [4]. A 13G tends to be a slower signal (filing deadlines can be up to 45 days after crossing 5% for many passive investors) [4]. Still, a jump in ownership via 13G is an early sign of bullish positioning (just without activist intent).

- **Proxy nominations and activist 8-Ks:** If an investor nominates directors or launches a proxy contest, it's a *strong early signal* of an activist campaign. These events often surface through 8-K filings or 13D exhibits. Look for 8-K **Item 5.02** disclosures of director changes or nominations, and Item 1.01 entries about cooperation or settlement agreements with activists [5]. An activist's Schedule 13D might append exhibits like letters to the board, cooperation agreements, or nomination notices [6] – all indicating an accumulation phase intended to drive change. In the GME case, Michael Burry's public letter urging buybacks in 2019 (despite only a ~3% stake) was an early activist signal that management was under pressure [7]. Such letters or formal nomination notices often precede board shake-ups and rapid stock moves.

- **Form 4 insider buying clusters: Form 4** filings report insider transactions (officers, directors, ≥10% holders) within 2 business days [8]. A cluster of insider buys – multiple executives or board members buying stock on the open market around the same time – is a bullish accumulation signal (insiders showing confidence) [9]. Conversely, clusters of insider sales may signal distribution. Early in a potential rotation, *insider buys into weakness* or purchases concurrent with an outside activist's entry can corroborate that "smart money" is accumulating [9]. For example, if GameStop's insiders had been buying shares around the time Ryan Cohen was building his stake, that would amplify the significance of Cohen's 13D entry. Tracking Form 4s in real time gives one of the fastest signals (within days of the trade) of insider sentiment.

- **Dark pool (off-exchange) volume anomalies:** Unusual trading patterns in alternative trading systems (ATS) or other off-exchange venues (dark pools) can indicate stealth accumulation. Big institutions often use dark pools to accumulate shares without alerting the broader market. The methodology monitors weekly **FINRA OTC transparency data** for spikes in off-exchange volume [10]. A significant deviation above baseline off-exchange trading (as a percentage of total volume) suggests an institution is quietly acquiring shares. For instance, if GME normally had 20% of weekly volume off-exchange but suddenly saw 40–50% off-exchange during a week (without news), that would flag possible stealth buying. We use FINRA's ATS and non-ATS reports to quantify this signal (published with ~5 business day lag) [11] [12]. A sharp increase in dark pool volume, especially combined with price stability (indicating someone absorbing shares), is a telltale early rotation signal.

- **Share buybacks and capital return:** Significant **share repurchase programs** announced by the company can serve as an accumulation signal (in this case, the *buyer* is the company itself). Activist investors often push for buybacks when they see undervaluation [7]. If a company starts buying back stock (disclosed via press release or 8-K, and later reflected in 10-Q/10-K), it reduces float and can signal to the market (and short sellers) that big players consider the stock cheap. In the rotation context, an announced buyback – especially following activist pressure – can be interpreted as an early sign that the shareholder base is about to turn over in favor of "stronger hands." On the timeline, note any 8-K Item 7.01 or press release about a new buyback authorization and treat it as a bullish rotation catalyst if coinciding with other accumulation signals.

- **8-K Item 5.02 executive/board changes:** Changes in leadership or board composition often accompany activist rotations. An activist accumulating a stake may negotiate board seats or prompt resignations of entrenched directors. Monitor 8-K filings, Item 5.02 (resignation or appointment of directors and key officers) for such events [13]. Early signs include sudden director resignations "to pursue other opportunities" (which might signal an activist agreement), or expansion of the board to add new members (often the activist or their nominees) [13]. These governance changes are typically reactive to accumulation behind the scenes. For example, GameStop announced new board appointments in January 2021 (adding activist Ryan Cohen and associates), which confirmed the culmination of an accumulation phase and impending strategic shift. Our methodology treats these 8-K disclosures as *confirmation signals* that an institutional rotation (activist entry) has progressed to a board-level impact. They often slightly lag the initial accumulation but are critical in validating it.

- **Derivative position footnotes:** Savvy investors may accumulate economic exposure via **derivatives (options, swaps)** that don't immediately trigger reporting. However, if they later file a 13D, they must disclose these arrangements in footnotes or Item 6. We scan filings for clues like *"inclusive of options"* or *"cash-settled swap equivalent to X shares"*. A footnote that an investor holds call options or swaps referencing the stock indicates *synthetic ownership* beyond the reported shares. This is an early warning that the investor might have quietly built a larger stake under the radar [14]. Our methodology flags any mention of such derivative positions and adjusts the perceived stake size accordingly. For example, if a 13D reports 5% in shares but notes an economic interest for another 3% via swaps, we treat the investor's influence as ~8%. Activists often use this tactic to avoid early 13D disclosure, remaining anonymous via prime broker counterparties [15]. Therefore, derivative footnotes are crucial signals – they reveal hidden accumulation that might otherwise only be seen with a substantial lag (when prime brokers file 13F, often after quarter-end).

Each of these signals can appear **early in the rotation timeline**, often before a big price move or "squeeze." By systematically tracking them, one can construct an early-warning system for institutional rotations. The key is to **capture both the fact of the signal and its timing** – this leads to the next component: distinguishing activist vs passive intent and modeling the timing latency of signals.

2. Distinguishing Activist vs. Passive Entries

Not all big entries are equal – the methodology separates **activist entries** from **passive long entries** to assess their significance:

- **Filing type and intent:** The type of ownership filing is the first clue. A **Schedule 13D** implies activist intent (the filer declares they may influence control) [1], whereas a **Schedule 13G** denotes a passive investor with no activist agenda. Thus, a 5% stake disclosed via 13D is treated as a *high-conviction, potentially catalytic* entry, while one disclosed via 13G (or only via the quarterly 13F report) is considered *passive* or routine. For example, when Ryan Cohen's RC Ventures disclosed a ~9% stake in GME, it filed on Schedule 13D (signaling an activist approach), whereas BlackRock's similar-sized stake was disclosed via 13G as a passive holder. Our framework assigns higher weight to 13D filers in rotation scoring (and we scrutinize their filings for "Purpose of Transaction" language indicating plans like board changes, M&A, etc.) [1]. In contrast, passive 13G filings are noted but carry less immediate implication for a squeeze or strategic change.

- **Activist "tell-tales":** An entry is classified as *activist* if accompanied by actions such as: board seat demands, public letters to management, proxy contest threats, or cooperation agreements. These often appear in 13D Item 4 narratives or exhibits (e.g. a 13D exhibit might be an activist's letter or a term sheet for board appointments) [6]. If an investor files a 13D and, say, within it or shortly after there's an 8-K announcing a cooperation agreement or board nominations, we categorize this as an **Activist Entry**. The presence of 8-K 5.02 or 5.07 events (board changes, voting results with activist involvement) linked to the investor's actions is a strong confirmation of activism. In GME's case, Cohen's stake was clearly activist – evidenced by his push to join the board and strategic direction influence, which we distinguish from a passive index holder increase.

- **Passive profile indicators:** An entry is treated as *passive long* if it comes from investors known for passive strategies (index funds, ETFs) or if disclosed only via 13F/13G with no activism signals. These investors usually don't agitate for change; their accumulation might be due to index rebalancing or general bullishness. For instance, if State Street Global Advisors increases a stake from 4% to 6% and files a 13G, it's likely just due to index fund flows or market appreciation. Our framework might still flag large passive moves (especially if multiple passive funds all buy in, which can buoy a stock's base), but we differentiate them because passive accumulation alone rarely triggers the kind of catalyst that activist involvement does.

- **Filer history & conversion:** Another heuristic is whether a holder switches from 13G to 13D. A formerly "passive" investor who amends their filing to 13D (or files a new 13D after exiting a 13G) is effectively *flipping to activist mode*. This is a big red flag that an activist campaign is starting [3]. The methodology marks such transitions distinctly. Also, an investor's reputation matters: known activist hedge funds (e.g. Scion, Elliott, Icahn) are assumed activist even if the initial filing was passive (though most will file 13D). Conversely, known passive institutions (BlackRock, Vanguard) can be assumed passive unless evidence suggests otherwise. We incorporate a lookup or classification of filers to aid this differentiation, ensuring the **Rotation Score**

(discussed later) rewards activist-driven rotations more heavily than purely passive ownership changes.

By applying this framework, each detected entry is tagged as **Activist Entry** or **Passive Long Entry** (or somewhere in between, if unclear). This distinction feeds into how we interpret subsequent signals: an activist entry usually precedes more radical corporate changes (hence potentially bigger stock impact), whereas passive entries might need additional factors (like short interest or external news) to be impactful. The next step is to account for **signal timing latency** – essentially, how early or late each of these signals becomes public.

3. Signal Timing and Latency Model

Different signals have different lags between the **transaction date** (when the ownership change or event actually happened) and the **disclosure date** (when the public can first trade on it). Our methodology explicitly models this latency and strives to rank events by the *earliest tradable signal*. Key considerations include:

- **Regulatory disclosure deadlines:** Each filing type has known reporting delays. For instance, **Form 4** (insider trades) must be filed within 2 business days of the trade, so it's a near-real-time signal [8]. **Schedule 13D** must be filed within 10 days of crossing 5% ownership (event-driven), providing a relatively timely alert (though the accumulation may have occurred over days or weeks prior). **Schedule 13G** for passive investors traditionally could be filed as late as 45 days after year-end (for year-end changes) or within 10 days of the end of the month in which the 5% threshold was crossed (depending on the filer's category) [4] – in any case, a slower signal than 13D. **Form 13F** (institutional quarterly holdings) has the longest lag: quarterly data is disclosed 45 days after quarter-end [16]. That means an investor could build a stake in early January but the public might not see it until mid-May (a ~4-month latency) [16]. Our model assigns a **timeliness score** or ranking to each signal: Form 4 and 13D rank as *early signals*, 13G intermediate, and 13F as a *lagging signal*.

- **Transaction date vs filing date capture:** For each event we log in the rotation timeline, we record two dates: when the underlying transaction/event happened (if known) and when it was first publicly disclosed [17]. For example, if an activist crossed 5% on August 5 but filed the 13D on August 15, the transaction date is Aug 5 and the actionable disclosure date is Aug 15. This allows us to calculate latency (10 days in this case). We then use the **earliest disclosure** as the key date for trading signals. In practice, we often sort timeline events by filing date (since that's when you *could* react) [17], but we annotate the hidden lag because it's important for understanding how stealthy an accumulation was. A shorter lag (like a Form 4's two-day turnaround) means minimal latency; a long lag (like a 13F) means the market could be unaware for weeks or months.

- **Ranking by earliest signal:** When multiple signals relate to the same underlying rotation event, we highlight whichever came out first. For instance, consider a big holder quietly selling out in December but it's only visible in the 13F filed in February. However, if insiders also started selling stock in December and filed Form 4s, those Form 4 filings in December would be an **earlier tradable signal** of distribution (ahead of the 13F reveal in Feb). We design the model to catch such early clues. In the GameStop example, before Michael Burry's Scion 13F showed his initial stake (which came in Q3 2019 filings), he actually wrote a public letter and likely filed a Schedule 13D/A in 2019 – that letter (via news) and any 13D/A would have been earlier signals than merely

waiting for the 13F. Our methodology would mark the *public letter/13D filing date* as the key actionable date, not the quarter-end data.

- **Event timeline construction:** We build a chronological timeline of all rotation-relevant events with their disclosure dates and categorize them (entry, accumulation, distribution, exit, governance change). Each timeline entry includes an "Earliest Actionable Signal" description to clarify what tip the public had at that point [17]. For example: *"2020-12-21 – RC Ventures files 13D/A increasing stake to 12.9% – Earliest actionable insight: Activist escalates (disclosed via 13D filing)"*. This approach ensures we focus on when an investor *could have known* and acted. It also helps in back-testing: we can ask, "Had we been monitoring in real-time, which of these events would have alerted us first to what was happening?"

- **Real-time data supplements:** In addition to SEC filings, we integrate data like short interest and off-exchange volume which have their own reporting cadence. FINRA short interest is published twice a month with about a 8-business-day delay [18] [19]. FINRA ATS (dark pool) data is weekly with ~5-day delay [11]. These are not instantaneous either, but they can confirm activity in between filings. For instance, if an activist's 13D is filed mid-quarter, the next short interest report (if it shows a big drop in short interest) might come days later and serve as another timely confirmation signal. Our model takes into account these varying lags by essentially time-stamping each data point and maintaining a **rolling window view** of what information was available when.

Using this latency model, we **rank events by their earliest available signal**. In practice, this means a 13D filing (short lag) will outrank a 13F disclosure (long lag) in terms of early warning significance. We design alerts such that as soon as a high-impact filing (say, a new 5% 13D or a cluster of insider buys) hits the tape, it triggers our detection, rather than waiting for a quarterly update. This way, the methodology aims to catch rotations *as early as possible*. Next, we quantify the overall rotation activity through a **Rotation Score** that synthesizes these factors.

4. Rotation Score Framework

To systematically evaluate and score the intensity of rotation activity in a stock, we define a **Rotation Score** – a composite metric that incorporates multiple dimensions of the signals observed. The score is designed to highlight when a stock is undergoing significant "rotation" in ownership (in or out) that could presage a big move. Key components of the Rotation Score include:

- **Stake Change Magnitude & Direction:** We assign points based on the **size of ownership change** and whether it's an entry or exit. Large entries (especially a new stake above key thresholds like 5% or a **material increase** in an existing position) significantly boost the score, as do large exits (a major holder dumping shares). The rationale is that a big whale buying in or out is the core of rotation. We quantify stake changes in terms of percentage of float or previous holdings. For example, an investor increasing their stake from 0% to 6% (entry) or cutting their stake by more than half (exit) would score highly. In our internal spec, we use thresholds like a $\geq$30% reduction in prior stake or $\geq$1% of float sold as a significant "dump" event [20] – similarly, an increase of that scale on the buy side is significant. Direction is noted: **Entry/Accumulation** (buying) events signal positive rotation (new support for the stock), while **Distribution/Exit** (selling) events signal negative rotation. Both are important (one signals a bullish catalyst, the other a potential overhang or bearish signal), and the Rotation Score can be positive or negative or use separate sub-scores for buying vs selling pressure.

- **Filing Type (Signal Timeliness and Intent):** The score weights signals by their type, reflecting both how timely and how intent-laden they are. A **13D filing** (activist, timely) is given the highest weight – it's an explicit, near-term signal of a high-conviction move [4]. A **13G** (passive, somewhat delayed) gets a moderate weight. A **13F-only change** (no 13D/G, only discovered in quarterly report) is weighted lower, as it's delayed and possibly less intentional (could be part of many moves in a fund). This hierarchy (13D > 13G > 13F) ensures the Rotation Score values *early activist signals* more. We also factor in **Form 4 clusters**: an cluster of insider buys is akin to an "entry" signal from those closest to the company, so it can boost the score similar to an external accumulation. In short, the more immediate and purposeful the filing, the higher its contribution. For example, a brand-new 13D filing crossing 5% might add a large fixed score (for being activist & timely), whereas a 13F-revealed position adds a smaller score. This encourages catching situations like GME: when Ryan Cohen filed a 13D, the score would spike quickly (versus if one only noticed his stake months later via 13F, much of the move would be missed).

- **Insider Participation or Opposition:** We incorporate whether **insiders (officers, directors)** are buying or selling alongside the institutional rotation. Insider activity is a strong gauge of internal sentiment: if insiders *participate* in the accumulation (buying shares or at least holding firm), it reinforces the bullish signal; if they *oppose or diverge* (for example, an activist buys in but insiders are dumping stock or resigning in protest), it can muddy the signal. The Rotation Score framework might add points for insider buying in the rotation window or subtract points if insiders aggressively sell into an outsider's buying. In practice, for GME-like situations, the lack of insider selling during the activist accumulation phase would keep the score higher (no opposition from within). On the other hand, if we saw, say, multiple insiders selling stock while an activist is trying to accumulate (a sign of potential lack of confidence or an attempt to foil a takeover), we'd flag that as a mitigating factor (lower score due to insider distribution) [21]. We also consider insider **role** – purchases by key figures (CEO, CFO, Chairman) might be weighted more than by a minor director. In summary, insider alignment with the rotation amplifies the score; insider divergence dampens it.

- **Short Interest Changes: Short interest** is critical in rotation scenarios, especially for squeeze potential. We factor in both the level and change in short interest. A stock with unusually high short interest that is seeing big institutional buying will get a higher Rotation Score – because the combination of heavy short bets and new large buyers can lead to dramatic squeezes (as was the case with GME, where short interest exceeded the float) [22]. Conversely, a sharp *drop* in short interest following an entry could indicate shorts covering (a validation of the bullish rotation). We quantify this by looking at FINRA short interest data: for each significant rotation event, what did short interest do in the surrounding days/weeks? If an activist entry is disclosed and then the next short interest report shows a significant decline (shorts closing positions), that positive change (short interest down) adds to the score – it's evidence the rotation is forcing shorts out (short squeeze dynamics) [23]. If short interest instead *rises* significantly during an exit (e.g., a big holder dumping shares and shorts piling on), that might add to a *negative* rotation score (bearish rotation, potentially leading to price drops). In effect, we treat **short interest % of float** as a multiplier: the higher it is, the more any rotation matters. And we treat a **change in short interest** post-event as confirmation: score +X if shorts cover after an entry (bullish), or score +Y if shorts increase after a big exit (bearish momentum).

- **Off-Exchange Volume Deviation:** We integrate **FINRA off-exchange (dark pool) volume signals** into the score as an early indicator of stealth trading. If during a rotation event we detect abnormally high dark pool activity (compared to historical baseline), we boost the Rotation Score because it suggests institutions are actively moving shares behind the scenes. We typically calculate the off-exchange volume as a percentage of total volume and see how many standard

deviations it is from normal. A week that stands out (e.g., off-ex volume jumps to 50% of trading from a usual 20%) would get a substantial score increase for that period. This factor is especially useful for catching accumulation *before* official filings. For instance, if we noticed weeks of elevated dark pool volume prior to a 13D filing, the score would have started rising in advance. In practice, we maintain a rolling baseline of off-exchange activity and flag significant deviations [10]. Those deviations contribute to the score in proportion to their size and duration. This incentivizes our system to pick up on quiet accumulation (which often manifests as persistent dark pool buying to avoid moving the price).

- **Composite Scoring and Thresholds:** The Rotation Score can be thought of as `Score = f(entry size, exit size, filing type weight, insider alignment, short interest factor, dark pool factor)`. Each component can be scaled (e.g., stake changes measured in % of float, short interest measured in % of float or days-to-cover). We might assign, for example, 5 points for a >5% new stake (13D), +2 points if short interest >50% of float, +1 for each additional insider buy, etc. The exact formula can be fine-tuned, but the guiding idea is: **when multiple bullish factors coincide, the score will be very high**, and when multiple bearish/distribution factors coincide, it will be very low (or a high negative, if using a signed score). A balanced or mixed scenario will score closer to neutral. By setting thresholds on this score, we can **screen for top rotation candidates**. For example, any stock with a Rotation Score above, say, 8/10 over the last quarter could be flagged for further review (as it likely has an activist, heavy buying, and shorts – the "full combo" for explosive moves).

The Rotation Score framework thus translates the qualitative signals into a quantitative measure. It is **modular** – each factor can be computed independently and then combined. This makes the score explainable: we can break down, for instance, that a stock scored 9/10 because *"Activist bought 10% (score +5), short interest at 90% of float (+2), off-exchange volume spiked for 3 weeks (+1), insiders bought alongside (+1)"*. Each component is tied to a real, documented event or data point, which is crucial for trust and auditability. We also include certain **normalization and guardrails**: for example, adjusting for market cap (a 5% stake in a mega-cap is more dollars than in a micro-cap, but in terms of rotation impact we focus on percent of float), and excluding moves that are purely index-driven (if our data indicates the change happened due to index rebalancing, which we address below in enhancements). Next, we discuss some enhancements and special cases that the methodology handles to ensure even subtle or complex scenarios are captured.

5. Enhanced Detection Techniques and Edge Cases

5.1 Detecting "Stealth Exits"

A **stealth exit** occurs when a large holder sells down their position below the 5% reporting threshold to avoid further disclosure. In such cases, you might not see a timely 13D/A filing saying "we sold out," because once below 5%, they are no longer obliged to file. Our methodology addresses this by tracking holders across reporting periods and using proxies like 13F and proxy statement data:

- We **log the last known position** of each major holder and the context. If an investor was above 5% (and thus on file) and then simply disappears from subsequent filings, we flag a likely stealth exit. For example, Scion Asset Management was a 5%+ holder of GME in early 2020, then filed a 13D/A in May 2020 indicating it went below 5% [2]. After that, Scion did not file another 13D/A (since it was below the threshold), but by tracking 13F reports we could confirm Scion's shares kept decreasing and by Q4 2020 they were completely gone [24]. The methodology would note: "Scion last reported 3,400,000 shares (5.3%) as of April 2020; as of the next available data it no

longer appears – implying a full exit, exact date unknown." We make sure to record the **last date they were confirmed >5% and the first date they were confirmed below 5% (or absent)** [25]. This gives a time window for the exit.

- **Proxy statements and 13F checks:** Annual proxy statements list all 5%+ holders at a certain date. If an investor who was in last year's list is absent this year (and they didn't file an exit 13D/A), that's evidence of a stealth exit [25]. Similarly, if a fund's 13F once showed a large position and in the next quarter it's drastically reduced or zero, that indicates an exit. Our system cross-references these sources to catch exits that weren't explicitly announced. We may not know the exact day they sold, but we mark the rotation event as "Exit (stealth)" with the best approximate timeframe. This is important for scoring – a stealth exit by a previously bullish holder is a bearish rotation signal, even if it's not loudly advertised. The methodology assigns a negative rotation score impact when it detects such a pattern.

- **No follow-on 13G/A as a clue:** For passive holders, if someone filed a 13G showing, say, 6% ownership and thereafter we never see an amended 13G or they vanish from the top holders list, we deduce they likely fell below 5%. While passive 13G filers are only required to update annually or when crossing certain thresholds, the absence of an update can itself be telling if we have other data points (like a proxy showing they're no longer above 5%). We list those scenarios in our timeline as well, annotated as "fell below reporting threshold – presumed exit."

By building these checks, the methodology **ensures we don't falsely assume a holder is still in the stock just because they never filed a sale**. Every significant holder is tracked until we have evidence of their exit. In the GME timeline, this approach clearly shows Scion's exit in mid-to-late 2020, even though after the initial drop-below-5% filing, the rest of the selling was only inferable from quarterly data. We treat that as a rotation event (transfer of shares from Scion to the market/other buyers) and factor it into the Rotation Score.

5.2 Synthetic Ownership via Derivatives

Modern activists and institutions sometimes use derivatives to accumulate exposure without early disclosure (as mentioned in signals). The methodology has a module to **estimate true ownership including synthetic positions**:

- **Parsing filing footnotes:** Whenever we ingest a 13D or 13G filing, we parse not just the main fields but also footnotes and Item 6/7 for mentions of options, swaps, or other derivative arrangements. If an activist notes, for example, *"excludes 1,000,000 shares underlying call options"* or *"the reporting persons have economic exposure to ___ shares through cash-settled swaps with Broker X"*, we capture that. We then **add those shares to the investor's effective stake** for analysis purposes. So an investor reporting 5% in stock plus another 3% via derivatives would be treated as an 8% stakeholder in terms of influence (even though legally they only have 5% voting rights until derivatives are exercised). This is important because such positions often precede conversion or additional share purchases. In a squeeze scenario, a call option position can translate to future buying (when calls are exercised or hedged by market makers). So we want our rotation detection to account for these.

- **Identifying prime broker intermediaries:** In some cases, activists remain hidden by using swaps – only the bank shows up in the 13F filings (as the nominal holder) [15]. Our methodology cross-checks unusual holders of a stock. For instance, if we see in 13F data that Nomura or Goldman suddenly appeared with a large long position in a mid-cap stock, and there's concurrently a rumor or later confirmation of an activist, we suspect that position was on behalf

of someone via swaps [26] [27]. While we may not always know who, we mark that as "possible derivative accumulation by unidentified investor." In the event that the activist eventually files a 13D disclosing the swap, we can then connect the dots. For automation, we could maintain a list of prime brokers known to facilitate swap positions and flag their abnormal moves.

- **Incorporating synthetic ownership in score:** If our analysis finds, say, an additional 3% of float in synthetic longs for an activist, the Rotation Score gets a boost similar to if they had bought those shares outright. We essentially treat economic ownership the same as actual shares when assessing rotation impact. The methodology also highlights this in the explainability: e.g., "Investor X effective stake ~8% (5% shares + 3% via derivatives) – indicates higher commitment than visible from shares alone." This guards against underestimating an activist's firepower. In GME's case, there weren't publicly known swaps for Burry or Cohen, but this feature would be crucial in cases like Herbalife (Ackman's puts), or Volkswagen's 2008 squeeze (Porsche's cash-settled options). It ensures our rotation detector isn't fooled by *the form* of ownership – economic influence is what matters.

5.3 Correlating Proxy Contests and Ownership Shifts

A true activist rotation often culminates in (or stems from) a **proxy contest or strategic event**. Our methodology links **proxy fight timelines** with the ownership changes around them:

- **Proxy contest announcements:** When an activist announces a proxy contest (e.g., nominating a slate of directors, or a shareholder meeting showdown is scheduled), we treat the announcement date as a critical event in the timeline. We then look at the periods before and after this announcement for unusual ownership shifts. Often, once a proxy fight is on, other investors may take sides – some arbitrage funds might buy shares to ride a potential win, or existing holders might sell if they expect the activist to lose. We correlate the **proxy contest period** with any 13D/G filings or 13F changes. For example, if a proxy fight for GME was underway, and during that period a new 5% holder quietly appears in the next proxy statement (without prior 13D), that suggests a "silent supporter" accumulated during the fight [28]. We would flag that as part of the rotation story (possibly a passive fund aligning with the activist's view or a deep value investor taking a position).

- **Voting outcomes and subsequent rotation:** The results of a proxy vote (e.g., activist wins board seats or fails) can lead to rotation. If an activist wins (gains control), sometimes short sellers cover en masse (bullish rotation continues) or the stock might jump attracting momentum buyers. If they lose, the activist might exit (bearish rotation). We incorporate **8-K Item 5.07** (vote results) and any post-vote 13D filings (activist selling or doubling down) to complete the picture [29]. In scoring, a successful activist campaign that leads to board change is a *positive rotation confirmation* (the "thesis" played out), whereas a failed campaign followed by the activist selling out would be captured as a negative rotation event.

- **Alignment of dates:** We ensure the timeline notes events like "DEF 14A filed – activist nominates 3 directors" and then tracks in the following weeks: did institutional ownership (via 13F or daily trading data) shift notably? In many cases, proxy fights attract merger arb or event-driven funds who buy stakes for voting or speculative purposes. Our system could pick up a spike in off-exchange volume or an increase in 13F positions by other hedge funds around the contest. We'd reflect that as "additional rotation around proxy contest." Essentially, the methodology doesn't treat the activist in isolation; it looks at **broader ownership reactions** to activism. In the GME scenario, while there wasn't a contested shareholder vote (since the board changes were negotiated), we did see that after Cohen's board appointment (Jan 2021), the stock's ownership

broadened – many retail investors and momentum funds jumped in, while some shorts started covering. That is a rotation of ownership from pessimistic (shorts) to optimistic (new longs) catalyzed by the activist's success. We model these shifts by noting short interest drops, volume surges, and any filings from funds that quarter.

In summary, we enhance the core methodology to catch edge cases: *quiet exits, hidden derivative stakes, and proxy battle-related moves*. These additions make the model more robust and reflective of real-world activist scenarios, where not everything is in plain sight or neatly timed with filings. By capturing these, we ensure the **Rotation Score** and alerts remain effective even when players try to fly under the radar or when multiple parties are involved.

6. Use Case: Scoring a Post-Activist Scenario (GME after Burry's Exit)

To illustrate how this methodology surfaces investment candidates, consider **GameStop (GME) in the period after Michael Burry's Scion Asset Management exited (post-2020) but before the January 2021 short squeeze**. This was a crucial window where the groundwork for the explosive move was laid. Our methodology would have identified GME as a high Rotation Score stock even *after* the well-known activist (Burry) left, due to the following factors:

- **New Activist Emergence:** Not long after Burry quietly wound down his position (Scion's stake was completely sold between Q2 and Q4 2020 [24]), another activist investor stepped in – Ryan Cohen (through RC Ventures) revealed a ~9% stake in August 2020 [7]. This was disclosed via a 13D (an activist filing), immediately marking GME as having a fresh high-conviction investor. Our framework, upon detecting Cohen's 13D, would score this as a major *entry event*. Even though one activist (Burry) was gone, a potentially more influential one had arrived. The Rotation Score would get a strong boost for "new 13D activist entry, ~9% stake." It would also note the *context*: GME's stock price was still low, and Cohen was a prominent figure (former Chewy CEO) aiming to pivot the company's strategy – all signs of an impending rotation in the shareholder base towards an activist-led cohort.

- **Board and Governance Signals:** In January 2021, Ryan Cohen was appointed to the board along with two allies, formalizing the activist's influence [30]. Our methodology treats that 8-K announcement as a confirmation of the activist's success (board rotation event). By the time of this event, the Rotation Score would have been quite elevated: we have an activist who increased his stake (Cohen upped from 9% to 12.9% by Dec 2020 [2]), plus the company capitulated to his demands (board seats). This event would be logged as "Board change – activist joins (cooperation agreement)" and would likely push the score to a peak. Essentially, any stock where an activist moves from entry to board-level changes in a few months is flagged as a top candidate for a big move (because such situations often precede strategic shifts, buybacks, or other catalysts).

- **Short Interest and Market Imbalance:** A critical aspect that made GME explosive was the **extremely high short interest**. By late 2020, GME's short interest was well over 100% of the float (approximately 140% by January 2021) [22]. Our methodology would have incorporated this data into the Rotation Score. Even if one didn't know *when* a squeeze would happen, the score recognizes the *setup*: a new activist long pushing for change, against an overextended short base. GME's score in late 2020 would have been boosted by a factor reflecting "short interest at extreme levels." The combination of high-conviction buying (Cohen and also some smaller activists like Hestia Capital) and sky-high shorts is exactly the recipe the score looks for. In

practice, GME would rank very high on our list of rotation candidates going into Q4 2020 – even though Burry (who initially spotted the value) had exited, the **signals that remained (Cohen's stake, others accumulating, insiders relatively steady, short interest off the charts)** were more than enough to keep GME in focus.

- **Insider and Other Institution Reactions:** During this period, insiders at GME were not significant net sellers – in fact, there was a sense that management was considering changes (the CEO later resigned in 2021, making way for Cohen's team). Lack of insider selling meant no negative flag to reduce the score. Additionally, passive holders like index funds didn't flee; some, like BlackRock, actually ended up with sizable positions that massively gained value in the squeeze (BlackRock had a passive ~13% stake that wasn't activism, but provided holding power). Our methodology would note that no major insider dumping or passive exodus was occurring; instead, passive holders were steady or adding slightly (e.g., via index rebalancing or cheap shares). This stability in the face of activist involvement further supports a positive rotation narrative (no internal opposition, and float tightening among friendly hands).

- **Off-exchange accumulation evidence:** It's worth noting that in the months leading to the squeeze, there were reports of **significant off-exchange (dark pool) buying** in GME, as some large players and possibly insider buybacks happened quietly. Although specific FINRA data for GME in late 2020 would need analysis, our automated module would have been watching weekly ATS data. Any noticeable uptick in dark pool volume (which one might expect given the large volume days when Cohen was rumored to be buying more in December) would have been an additional clue. Even absent that, the other factors were strong; with it, the case becomes ironclad.

Bringing it together, by the time we reach late December 2020, the methodology would have surfaced GME as something like: **Rotation Score = "Very High"**, with a profile stating: *"Activist investor increased stake to 12.9% (filed 13D)* [2] *, company entered cooperation (board seats) with activist, short interest ~140% of float, insiders not selling, possible buybacks (urged by prior activist) and off-exchange accumulation detected."* This is exactly the setup that in hindsight led to the epic January 2021 squeeze. The goal of the Institutional Rotation Detector is to highlight such setups *in advance*. GME post-Burry was a prime example – our system wouldn't drop GME just because one famous holder left; it would keep it on the radar due to the strength of the remaining signals. In fact, one could argue the rotation was **entering its most critical phase** after Burry's exit (as Cohen took the baton). Our methodology ensures that phase was fully captured and scored, enabling users to potentially position for the outcome that followed.

Even after the squeeze, the methodology can continue to score how rotation evolves (e.g., did shorts re-enter? did Cohen or others sell into the strength? do new activists come in?). But the key takeaway is that by using a holistic set of signals, we can catch cases like GME early – not *because* one particular guru is in, but because the **aggregate pattern** of accumulating forces versus distributing forces was extraordinarily skewed toward a bullish rotation.

7. Automation & Implementation Guidance

Finally, to operationalize this methodology, we outline how it can be implemented as a **self-contained, modular, and explainable system (e.g., a module or agent in a code repository)**. The approach is to break the problem into data collection, signal extraction, scoring, and monitoring components:

- **Data Ingestion Modules:** Set up automated **connectors to data sources** for each signal type. This includes: an EDGAR crawler (for 13D, 13G, 13F, Form 4, 8-K filings), a FINRA API client (for short interest and weekly off-exchange volume data), and perhaps an interface to company IR websites for press releases (or use a news feed for keywords like buybacks). These can run on schedules corresponding to data availability: e.g., a daily EDGAR check for new filings (with a near-real-time poller for forms as they come in) [31], a weekly job for FINRA OTC data after each week's release [32], semi-monthly for short interest [31], etc. Each ingestion module should store the raw data in a structured format (database or dataframes), keyed by ticker and date. For example, every time a 13D/13G comes in, parse it and store the key fields (filer, shares, % ownership, purpose text, etc.), with a link to the original filing. The system already uses unique IDs like EDGAR accession numbers to ensure traceability [33].

- **Signal Extraction & Feature Engineering:** Build functions to transform raw data into the signals defined by the methodology. This means computing things like "stake change percentage" from 13F data (compare current vs prior quarter for each holder), detecting "new 5% holder" events from 13D/G, identifying insider buy/sell clusters from Form 4 (e.g., N insiders bought in a 30-day window), calculating weekly off-exchange % vs baseline, and measuring short interest as a % of float and its changes around dates. Each signal can be a feature in a data model. For clarity and modularity, you might have separate scripts or classes like `FilingAnalyzer`, `InsiderAnalyzer`, `MarketMicrostructureAnalyzer` etc., each producing outputs that feed into the Rotation Score. For example, a `FilingAnalyzer` might output a list of "rotation events" with attributes (date, type, filer, shares, etc.) gleaned from SEC filings [34]. An `InsiderAnalyzer` could output any notable insider trading patterns (e.g., a summary that insiders net bought X shares in last Y days). A `MarketMicrostructureAnalyzer` could output metrics like "off-exchange volume was 3σ above mean last week" or "short interest jumped 10% from last report". All these pieces are then joined by ticker and date.

- **Rotation Score Computation:** Implement a scoring function that takes the extracted features for a given stock and time window and produces the **Rotation Score**. This function will apply the formula or criteria defined (weights for stake changes, filing types, insider alignment, short interest, etc.). It should also produce a breakdown for explainability. For instance, if the score is 8.5 out of 10 for GME, the system can output sub-scores like: StakeChangeScore = 5 (large activist buy), InsiderScore = 1 (small insider buys), ShortInterestScore = 2 (very high short interest), DarkPoolScore = 0.5 (moderate dark pool spike). By keeping this calculation transparent, users and developers can trace why a stock was flagged [33]. This is important for trust – each score is backed by real data points (with citations or accession IDs to filings in an audit report). In code, this might be a function that aggregates signals over the last quarter or a rolling window and then normalizes the score (possibly using historical data to calibrate what "high" means).

- **Alerting and Candidate Surfacing:** With scores computed, the system can automatically **surface top candidates**. For example, after each quarter's 13F cycle (or even continuously as filings come in), rank all tracked tickers by their Rotation Score. Those above a certain threshold or top N percentile would be output (as a report, dashboard, or even automated notification). In

practice, one could have a job that runs after each significant batch of data (e.g., right after 13F season ends, or when a big 13D hits) to update the scores. The output could be a table like: `Ticker – Rotation Score – Notable Events`, which might show, say, *"GME – 9.1 – New activist 13D, high short interest, insider buys"*; *"XYZ – 8.5 – Index buying + huge dark pool volume"*; etc. This helps portfolio managers or researchers quickly focus on the names with unusual rotation activity.

- **Integration as a Module/Agent:** In a repository context, one could wrap this functionality into a self-contained module (e.g., `rotation_detector.py` or a package with multiple submodules). This module can expose an API like `detect_rotation(ticker)` or `score_universe(universe_list)` that returns structured results. If using an agent-based architecture or workflow engine (such as Temporal, as indicated by the repo), you might implement a dedicated **Rotation Detection workflow** that orchestrates the steps above for each ticker on a schedule [35]. For example, a `rotationDetectWorkflow` can be triggered after data ingestion to calculate scores and store the results. This workflow can run for each ticker or batch of tickers, and it can be scheduled (e.g., run every quarter for all tickers, with ad-hoc triggers when a new 13D arrives). The modular design ensures that the same logic can be reused for any stock – just point it at a different ticker and the data pipelines fetch that company's filings and metrics.

- **Explainability and Logging:** We emphasize that the methodology must be explainable, so the implementation should log the evidence behind each signal. For every flag raised (like "activist entry detected" or "stealth exit detected"), log the filing IDs or data sources (e.g., *"Schedule 13D filed on 2020-12-21 by RC Ventures [2]"*, or *"Short interest on 2021-01-15 was 140% of float [22]"*). This can be output in a report or even stored in a graph database linking entities (investors, filings, companies) for transparency. The user of the system can then drill down on a high Rotation Score and see the timeline of events that led to it. By design, no part of the score is a black box – it's all rooted in observable filings and data (we avoid any unverifiable signals). This aligns with the guardrails: **no fabricated data, only documented facts and well-founded inferences** [36]. If something is uncertain (like a stealth exit exact date), we annotate it as such, rather than assume.

- **Testing on the GME case and beyond:** As a final step, we'd test the module on the full GME 2014–2025 timeline to ensure it correctly picks up all key rotation events: Burry's entries and exit, Cohen's entries, other fund movements, changes in short interest, etc., and that it scores the timeline in a way that correlates with known market reactions (spikes in score precede major price moves, for instance). Once validated on GME (the case study), the methodology can be applied to other stocks. The documentation here can serve as both a reference and a template. In fact, it can be reused by simply plugging in a different ticker and following the same steps (data collection, timeline building, pattern extraction) [37]. The code module would do the heavy lifting automatically, enabling rapid analysis across a universe of stocks to find the next "GME-like" scenario.

By following these implementation guidelines, we ensure the **Institutional Rotation Detector** is not just a theoretical framework but a practical, repeatable tool. It is structured in a modular way, making maintenance easier (each data source or signal can be updated independently), and it's explainable, which is crucial for user trust and for refining the model over time. As new patterns emerge (for example, new SEC rules accelerating filing deadlines, or novel tactics by investors), the system can be updated by adjusting the relevant module (e.g., updating the 13G deadline in the latency model, or adding a new signal type). The end result is a self-contained algorithmic "agent" that monitors ownership dynamics continuously and flags those special situations where the right combination of

players and pressures is building – just as it did with GameStop. This empowers investors or analysts to act on early rotation signals with confidence, backed by a comprehensive, evidence-based methodology.

---

1 2 3 5 6 9 13 17 21 25 28 29 34 36 37
institutional_rotation_research_methodology_gme_case_template.md
https://github.com/tradentic/institutional-rotation-detector/blob/4216097ef67c00e03684de806ef2906ec88a70cf/docs/research/institutional_rotation_research_methodology_gme_case_template.md

4 8 10 11 12 18 19 DATA_SOURCES.md
https://github.com/tradentic/institutional-rotation-detector/blob/4216097ef67c00e03684de806ef2906ec88a70cf/docs/data/DATA_SOURCES.md

7 22 30 GameStop short squeeze - Wikipedia
https://en.wikipedia.org/wiki/GameStop_short_squeeze

14 15 16 26 27 Watch Your Derivatives: The Role 13Fs Play in Detecting Shareholder Activism
https://corpgov.law.harvard.edu/2024/09/05/watch-your-derivatives-the-role-13fs-play-in-detecting-shareholder-activism/

20 23 33 rotation_score_v_5.md
https://github.com/tradentic/institutional-rotation-detector/blob/4216097ef67c00e03684de806ef2906ec88a70cf/docs/specs/rotation_score_v_5.md

24 Michael Burry: 9 Gamestop transactions (Scion Asset Management, LLC /
https://stockcircle.com/portfolio/michael-burry/gme/transactions

31 32 35 WORKFLOWS.md
https://github.com/tradentic/institutional-rotation-detector/blob/4216097ef67c00e03684de806ef2906ec88a70cf/docs/architecture/WORKFLOWS.md